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THE JOURNAL

of the

Missouri State Medical Association

The Official Organ of the State Association and Component Societies
Issued Monthly Under Direction of the Publication Committee

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THE DEVELOPMENT OF THE TEAR-SEARING OPERATION UP-TO-DATE

PETER C. KRONFELD, M.D.

CHICAGO

The subject of this paper is the "retinal tear-searing operation" as it was devised about ten years ago, for the treatment of certain types of detachment and as it has developed since from a rather crude and hazardous method into one of the most delicate and mitigated operations at the command of the ophthalmologist.

The types of detachment considered in this connection are as follows: (1) The traumatic detachment (following perforating or nonperforating injuries). (2) The detachment secondary to a primarily inflammatory chorioretinal disease. (3) The idiopathic or kryptogenetic (Terson) detachment.

From the common observation of minor chorioretinitic pathology in retinal detachments, it is easily understood that the limits between groups 2 and 3 are not very sharp.

I believe I am correct in saying that all ophthalmologists at the present time agree that in progressive detachments of one of the aforementioned types, a surgical procedure should be tried. The ophthalmologists do not agree in regard to the proper time, the proper method and to other circumstances. It is interesting to see that the six main methods in use at this time do not represent, as a casual observer might think, minor modifications of the old principle of producing an exudative type of chorioiditis. On the contrary, almost all of these methods are the result of different views concerning the pathology and mechanism of retinal detachment and hence are the more or less logical consequence of those views. Some of the methods originated and developed in the same country about the same time and for a while bore the signs of antagonism toward each other. It is very encouraging to note that lately, during the course of the last two years, the spirit of contention has almost entirely disappeared from the ophthalmological literature on retinal detachment. Compromises have been made, although I am glad to say mainly in favor of the idea that the closure of the retinal tear is the essential point in the surgical treatment of retinal detachment.

The six main methods for the surgical treatment of retinal detachment are (in an arbitrary, not chronological order): (1) The temporary or permanent removal of the subretinal fluid (sclerotomies, permanent drainage [Wecker, Meyer-Wiener]). (2) The elimination of inward traction by the shrinking vitreous ("Glaskörper-durchschneidung," incision of the vitreous [Deutschmann]). (3) The production of multiple chorioretinal adhesions (artificial adhesive chorioretinitis). (4) The tear-searing operation. (5) The restoration of normal or the production of supernormal tension (calfreutage, colmatage [Lagrange]). The injection of liquids into the vitreous (Deutschmann, Ohm, Birch-Hirschfeld, Sachs, Procksch) may be listed under this heading also. (6) The shortening of the sclerotic wall of the globe in malignant myopia (L. Müller).

Ever since the discovery of the ophthalmoscope it has been known that detached retinae occasionally show breaks in their continuity, which were described as tears, rents, holes, or disinsertions if the break occurred at the ora serrata. Albrecht von Graefe interpreted them as a very favorable event which might lead to reattachment. DeWecker (1870) apparently was the first author who stressed the rather frequent occurrence of retinal tears and considered them in his explanation of the pathogenesis of retinal detachment. The first accurate figures regarding the frequency of retinal tears were presented by Leber (1882) who found 11 such cases (73.3 per cent) among 15 detachments of less than 2 months' duration. In one additional case the presence of a tear was probable; in the 3 remaining cases no tear could be found, nor

From the Eye Department of the University of Chicago.
Read at the 76th Annual Meeting of the Missouri State Medical Association, Kansas City, May 1-4, 1933.

could its presence be entirely ruled out. In detachments of longer standing the frequence of ophthalmoscopically visible tears dropped to 51.8 per cent

For the following thirty years retinal tears were the subject of very extensive clinical and pathological studies, mainly carried on by the first instigator, Leber, but also by Nordenson, Gonin, von Hippel, Schweigger, Horstman and others. Through their efforts we were made familiar with the ophthalmoscopic characteristics and the location of the tears. We were taught that the holes were round (punched out), slit-like or horseshoe-shaped; and that in the latter cases the opening of the horseshoe always pointed toward the ciliary body and that the convex edge was always drawn inward. We learned that the great majority of tears was located between ora serrata and equator bulbi.

As early as 1898 it was demonstrated by Dimmer, and later on confirmed by Elschnig (1914), that outside of the tears which are found in acute detachments the development of additional secondary tears can be observed and followed up very closely in retinae that have been detached for long periods.

When Leber laid down the results of a lifetime's work on retinal detachment in 1916, he presented all those facts concerning retinal tears and combined them into his famous retraction theory according to which a shrinkage of the vitreous or of a preretinitic membrane leads to perforation of the retina and thereby causes retinal detachment. I do not wish to go into the details of the retraction theory or of any theory concerning the mechanism of retinal separation. For me, there persists too much of a hypothetical factor involved in those considerations. I still consider the retraction theory mainly as a working hypothesis and for that purpose the details are entirely unnecessary.

For us who read Leber's presentation 17 years after it was published it is very surprising to note that Leber did not think of tackling the tear in the retina. In his treatise in the Handbuch he did not mention that possibility. He approved of Deutschmann's incisions of the vitreous to eliminate inward traction of the retina in early stages of the detachment, and so did Gonin in his paper on the treatment of retinal detachment in 1921. This latter paper is of special interest because here Gonin states for the first time that obliteration of the retinal hole is necessary for a permanent reattachment of the retina: *"Toute réapplication durable présume l'obliteration préalable de la dechirure rétinienne."*

At that time Gonin did not think of any surgical procedure to produce the obliteration of the tear. He left it to nature to take care of the tear and suggested as therapeutic procedure a perforating thermocauterization which by producing a firm chorioretinal adhesion should counteract the pull of the shrinking vitreous (*"il faudrait opposer à l'attraction par le vitré en contrepoids suffisant par la creation d'un adhèrence solide de la rétine à la choroïde"*). He had found even at that time that chorioretinal adhesion was not sufficient to hold the retina in place if the vitreous traction persisted, because new tears developed and the detachment recurred.

It is obvious that the idea of searing the tear had not come to his mind at that time. He put the shrinkage of the vitreous in the foreground and could therefore only suggest procedures to counteract the inward pull. The idea of searing the tear was, therefore, not a direct consequence of the retraction theory. It originated, as I see it, much more as a result of intuition than of logical thinking, which is borne out by the fact that it took years until the man who had all the clinical and anatomical facts at hand and had set forth a modified retraction theory, became the advocate of the tear-searing operation.

Two years passed after the aforementioned article by Gonin until he stated for the first time in ophthalmological literature (1923) that the chorioretinal scar which follows cauterization must include ("interesser") the edges of the retinal tear because it is the purpose of the thermocauterization to close the tear and to prevent the free passage of vitreous fluid into the subretinal space. The year 1923 can therefore be said to be the time when the idea of the tear-searing operation became generally known.

To be accurate, the historian has to quote here some of the earlier moves in this direction to which, however, the ophthalmological world paid very little attention. It was Schoeler in Berlin who wrote in his book (1889) dealing with the tincture of iodine method: "I chose a point in the neighborhood of the rupture in the retina as point of application" (of the iodine). A few years later (1896) Deutschmann intentionally performed an ignipuncture in the area of the retinal hole, but abandoned this idea later on.

Another early performer of the tear-searing operation was Xavier Galezowski who in his communications in 1902 and 1903 stated very clearly that his method of treating retinal detachment consisted of aspiration of the subretinal fluid and of galvanocauterization of the torn portion of the retina. He had 33 per cent success in recent cases. His remarks were ap-

parently completely forgotten until Vogt (International Congress, Madrid, 1933) brought it to our attention again.

Gonin should therefore be called the rediscoverer of the tear-searing operation. His real merit, as I see it, is the fact that he convinced most of the world that it was the right principle and thus became the savior of innumerable eyes.

In the years 1923 until 1925 not much further progress was made; the principle of the tear-searing operation was only characterized more precisely when Gonin in 1925 before the German Ophthalmological Society stated: "The operation I use for retinal detachment is not new; it consists of a simple posterior sclerotomy with the Graefe knife and thermocauterization through the scleral opening, thus producing a scar which, as it were, binds the retina down to choroid and sclera. The success of this procedure is essentially conditioned upon choosing the right spot for the cauterization, which is the area of the retinal tear, so that the latter is directly or indirectly comprised in the scar."

Three years later, in 1928, Gonin reported his results on his first large group of cases and also for the first time gave a detailed account of his technic. For the first time we learned of what Gonin's material was composed. I believe this is an important point because medical views and operative methods born out of those are always influenced by the local peculiarities of the material. In the 60 cases of retinal detachment upon which Gonin based his report before the Societe d'Ophthalmologie in Paris (May, 1928), one or more tears were found in 53 cases. In the seven remaining cases the ophthalmoscopy was unsatisfactory because of opaque media or other causes. Among the 53 cases with tears *73 per cent had only one visible tear,* 15 per cent had more than one tear or retinal disinsertion. No other author ever published such a large number of cases with one single tear.

About this same time (1928) Gonin's technic became generally known. The problem of localizing fundus lesions on the surface of the globe had become acute again and Gonin solved it for himself and his associates by marking the meridian on the limbus by means of a guiding suture laid across the cornea and by estimating the position on the given meridian with the ophthalmoscope in reference to the limit of the ophthalmoscopic field (the "ophthalmoscopic ora serrata"). Gonin's method apparently worked very well in his own and in his associates' hands. Most of the other ophthalmologists felt that it should be substituted by a more accurate method and have within the course of the last few years discarded Gonin's "crude" method of localization. It is beyond the scope of this paper to discuss the present status of this feature of the tear-searing operation.

After the tear was localized on the surface of the globe, Gonin performed a posterior sclerectomy with the Graefe knife, thus opened the subretinal space and drained the subretinal fluid. Then he introduced the hot thermocautery or Paquelin into the aforementioned space (3 to 5 mm. inward from the outer surface of the sclera for 1 to 2 seconds, according to Amsler). That was the technic as it was described originally and is still used by the school of Lausanne and some of its followers (Vogt).

The results which Gonin reported with this method certainly looked good, almost too good to most of us. I might quote his statistical figures in this connection, but I will not because I have very little faith in statistics concerning the outcome of surgical procedures for retinal detachment. It is generally agreed that the outcome depends chiefly upon the following points:

1. Duration of the detachment; as it changes the arrangement and number of supporting elements in the retina (shrinkage of the supporting fiber apparatus, proliferation of glial tissue) and leads to degeneration of the rods and cones.
2. The condition of the retina as determined by previous diseases or injuries.
3. The number, size and location of the tears.
4. The duration of postoperative observation.

If the patients with retinal detachment are arranged in groups according to these points, then even the largest material has only very few cases in each group so that very little actual information can be obtained from those statistics. The accidental intangible factors probably influence the results in these small numbers just as much or more than those factors which we at the present time consider to be essential. I shall, therefore, make as little use of statistics as possible. Other authors (Safar, Weve) find statistics apparently as objectionable as I do and speak of consecutive series of cases, fully realizing that those are not strictly comparable either.

Still Gonin's results looked good, especially in his early series, and so did the results of Arruga, Clausen, Lindner and Vogt, not counting reports that were based on a few cases only. The whole ophthalmological world became interested in the new idea of the tear-searing operation and that general interest elicited a lot of comment pro and con which later led to modifications of the tear-searing operation. I

shall try to quote the various arguments brought forth in this connection, classified according to their relative significance.

Does the tear-searing operation of Gonin actually sear the retinal tear?

In this connection, we might state first that the tear-searing operation does *not only* sear the tear (see our previous classification), but also combats the disease retinal detachment by eliminating the subretinal fluid and also by producing a chorioretinal adhesion which according to Gonin is very extensive if the Paquelin is used. The white area, seen on the sixth day after the operation, keeps spreading and frequently finally occupies a territory of 4 to 6 disk diameters in every direction. In other words, the so-called tear-searing operation uses not only the principle of the closure of the tear to combat the detachment, but also the principle of chorioretinal adhesions. To prove Gonin's point, one of the two conditions would have to be fulfilled, viz.: (1) Every detached retina should become reattached if the tear is completely closed. (2) A detachment should at least partially persist, if the whole tear is not closed.

As to condition 1, every ophthalmologist now knows that this condition is fulfilled in many cases, but not in all of them. Some of these exceptions can be explained as the result of complications during or after the operation; others on the basis of tears which were found after the operation, and others in which we have to assume tears that we cannot see but cannot rule out either. We can, therefore, not prove the correctness of the idea of the tear-searing operation from the fulfillment of condition 1. Condition 2, however, has been fulfilled in every one of my patients. In other words, if there was a tear or portion of a tear whose free edge was not firmly adherent to the choroid, then the detachment persisted in that area. Persistence of a tear without detachment has been noted a few times by some authors, but Lindner believes that annular synechiae were present in all those cases.

It seems therefore correct to call the perforating thermocauterization of Gonin a tear-searing operation in spite of the fact that it also leads to an extensive chorioretinal adhesion.

Concerning the mechanism of the searing, various questions have been raised; for instance, what is the proper instrument for the cauterization and how deep should it be introduced into the eye? The Paquelin was thought to be too clumsy for application to the eye and therefore was substituted by the electric cautery. The temperature of the cautery if introduced into water or vitreous, drops because of conduction of heat to 20 to 30 centigrades above body temperature (Baurmann, Lister). This, however, does not necessarily apply to a Gonin operation during the course of which the cautery stays in the subretinal space. If the cautery were introduced into the vitreous cavity, which seems possible in large tears or prolonged application to the outside of the retina, then it would cool off immediately and have no further effect. It seems, therefore, inadvisable to go into the vitreous and cauterize the latter as Gonin believes he did.

Some authors even questioned the advisability of perforating the choroid. They reasoned that the granulation tissue which finally occupies the area of the former tear comes mainly from the choroid and only to a small extent from the retina which is not capable of very intense inflammatory reaction. Therefore, what is the use of exposing the retina to the danger connected with direct cauterization?

This brings up the question of the *dangers* connected with the thermocauterization. The unanimous opinion is that there are four main dangers; namely (1) intraocular hemorrhages occurring during the operation or during the two weeks following; (2) the formation of new or secondary tears developing around the location of the thermocauterization, apparently caused by the procedure (due to resulting necrosis of the retina); (3) the shrinkage of the retina toward the place of the closed tear; (4) faulty reattachment of the retina.

The later occurrence of a detachment developing from a place opposite to the primary and completely closed tear cannot be considered as one of the dangers of the tear-searing operation. It can only be interpreted as a sign of persisting shrinkage of the vitreous.

The first hazard mentioned seems unavoidable as long as there is a possibility of the cautery cooling off and therefore not coagulating the blood in an opened blood vessel. This danger can apparently be lessened by using the diathermic needle.

The second and third dangers suggest that the retina can stand a certain amount of heat, but if more than that amount is applied serious damage is done. That brings up the question: Is the thermocauterization a method that could be called a quantitative one? Unfortunately, it is not. Even if the Paquelin is brought up to the same temperature, introduced to the same depth and left there for the same length of time, the actual effect varies a great deal. It may well be that the sensitiveness of the retina to heat varies also—a factor whose magnitude

can hardly be determined—still the operator wants to know how much heat is actually applied to the tissues of the eye. Because of the varying amounts of moisture on the field of operation, the amount of heat actually applied with the Paquelin or with the electric cautery remains unknown and overdosage is just as likely to happen as underdosage. Those were the main points brought up in connection with Gonin's technic.

The greatest difficulty encountered by ophthalmologists in their attempts to follow Gonin's method was the point that the majority of their cases had either one tear of such a size or multiple small tears that a priori several thermocauterizations seemed necessary for the obliteration of all the openings which meant that all the well known dangers had to be multiplied before the prognosis could be given. The high percentage of single tears in Gonin's series has always struck me as a unique feature* and explained to me why his results with the thermocauterization were so satisfactory.

For the same reason, it is easily understood why Gonin and his associate, Amsler, had very poor results with the largest tears that occur, namely the disinsertions.

The main objections to Gonin's method of searing the tear can be summarized as follows: (1) The cauterization of the retina itself is dangerous and probably unnecessary for the closure of the tear; (2) the perforating thermocauterization is not a quantitative method; (3) the perforating thermocauterization is not very well applicable to multiple or very large tears.

Those were the reasons that led—without modifying the idea of the tear-searing operation—to extensive modifications of the technic of the operation.

The searing agent was not brought in direct contact with the retina any more; its application was limited to the sclera or choroid. Instead of "filling in the retinal hole" with granulation tissue, a clean and complete "exclusion" (Lister) of the hole was attempted by producing annular chorioretinal synechiae. The army of ophthalmologists combating retinal detachment withdrew from the subretinal space and reentrenched in the subchoroidal space (Fischer, Guist, Lindner, Safar, Vogt, Weve, and others). The choroid was only perforated at one or very few places to drain the subretinal space. To more easily measure the stimulus applied, two new agents were devised; namely, potassium hydroxide (Guist) and diathermy (Larssen, Safar, Weve). To apply potassium hydroxide to the choroid it became necessary to make numerous trephine holes in the sclera, an operation which in my mind will be safe only in the hands of very few operators. The procedure was recently simplified by Lindner when he invented the "undermining method" which requires only very few exposures of the choroid through which the liquid potassium hydroxide is injected. From my own experience and the results of other ophthalmologists, I believe that potassium hydroxide is a very adequate agent for the purpose of stirring up an adhesive chorioretinitis. Its immediate effect is fairly well limited, hardly ever penetrating through the entire thickness of the choroid and the adhesions produced seem firm and durable. The whole procedure, however, still is rather crude and extensive.

The primary actual or potential multiplicity of retinal tears in many cases of retinal detachment made Lindner work out his method for which I would like to suggest the name "fence" operation and which, since Gonin's original idea, probably has been the most fruitful principle devised in the treatment of retinal detachment. Its nucleus is to render multiple tears, whether they are complete or incomplete, ineffectual and harmless by surrounding them with a complete row of chorioretinal adhesions. This can be accomplished either with potassium hydroxide or—much simpler—with the diathermic needle (Safar). Since most of the tears lie preequatorially the fence need not be built all around the defective portion of the retina because the insertion of the retina at the ora serrata can serve as part of the fence.

The latest refinement and simplification of the tear-searing operation is the heat coagulation of the choroid with the diathermic needle (Safar, Weve). This method has obvious advantages. Accurate localization of the tear is not necessary any more because we can make landmarks in the fundus and on the sclera with the diathermic needle and determine their location in relation to the tear by ophthalmoscopy, which procedure is made much easier by keeping a contact glass on the patient's cornea during the entire operation. The closure of the tear can be done with almost microscopic accuracy. In cases with multiple tears it is just as easy to produce annular synechiae around each individual tear by repeated application of the diathermic needle as it is to build a fence around the whole defective portion of the retina. The modern ammeter actually registers the amount of heat applied to ocular tissues. The excursion of the ammeter needle could be

*This apparently is characteristic of a material with many *recent* detachments. (See Lindner, Arch. f. Ophth. 127-193, 1931.)

registered graphically on a kymograph thus giving the actual amount of heat applied.

It is, without any doubt, easier for the surgeon and less traumatic to the patient's eye, to perform the diathermic microcoagulation operation than the Guist potassium hydroxide operation. Which type of adhesion is more durable and "sea-worthy," we hope to learn within the next few years.

The formation of annular chorioretinal synechiae around the tears after application of potassium hydroxide or electrocoagulation necessarily requires close contact between the stimulated choroid and the corresponding portion of the retinae for at least a few days following the operation. Guist accomplishes that by perforating every other trephine hole with a blunt probe which guarantees good drainage of the subretinal space for several days. Weve stressed the necessity of removing the subretinal fluid completely for the success of the diathermic method. I also believe that inadequate drainage and therefore persistence of a shallow detachment during the first few days after the diathermic operation accounts for the failures of that procedure. I am inclined to believe that one or more trephine holes are more likely to produce fistulation than the small openings made with any diathermic electrode. From my personal experience I would say that the electrocoagulation is a very efficient method to "exclude" tears, if combined with one or two trephine holes to provide for drainage of the subretinal space.

Thus the technic of the tear-searing operation has become moderately easy, measurable and comparatively safe although we still see violent hemorrhages and other untoward effects (mainly after the use of potassium hydroxide) but they are getting fewer and fewer.

The pathogenesis of idiopathic or traumatic retinal detachment is still debatable. The fact that the idea of the tear-searing operation has become at least a working hypothesis for a yearly increasing number of ophthalmologists, speaks strongly in favor of the correctness of Gonin's idea concerning the retinal tears.

Guist feels that the potassium hydroxide "fence" operation is safe enough to be considered as prophylactic measure in areas in which invisible tears may be present or may develop later. Therefore he performs a "fence" operation along the whole equator of the globe (in two sittings) in order to make any tear that may develop in the anterior portion of the retina, ineffective. (Personal communication.)

TULAREMIC PNEUMONIA: REPORT OF CASE

By reviewing the extensive literature on tularemia, James R. Gudger, Detroit (*Journal A. M. A.*, Oct. 7, 1933), found two cases of tularemic pneumonia, in one of which the patient recovered.

MEDICOSOCIOLOGIC ASPECTS OF CHRONIC GLAUCOMA

JOHN GREEN, M.D.

ST. LOUIS

Every ophthalmologist of reasonably wide experience has again and again encountered that most hopeless of situations—the patient blind from chronic glaucoma. Statistics emanating from census reports and more particularly from surveys made in states where blind pensions are granted tell an identical story of appalling wastage of eyes and eyesight from this one cause. In the presence of the unfortunate end results of a disease which has aptly been termed the "tragedy of ophthalmology," each one of us has, doubtless, endeavored to reconstruct the events which led to the final catastrophe. Any human disaster in the domain of medicine which might have been averted or postponed invites a consideration of factors instrumental in bringing it about.

The prevention of blindness from chronic glaucoma is only in a small degree the individual problem of sufferers from the disease. Before satisfactory headway can be made much misapprehension and ignorance now prevalent even among intelligent laymen must be replaced by an understanding of a few simple facts concerning this disease. Those to whom the patient first appeals for guidance, the optician, optometrist, or family physician, must be alert to suspect, if not to detect, the early signs and symptoms. It is their duty to urge an immediate consultation with the ophthalmologist upon whom shall be placed the responsibility of determining whether or not these suspicions are well founded.

First, how may public interest be aroused? Disease is a very personal affair. Each of us is mainly interested in his own particular ailments or in those of the members of his family. How difficult it is to arouse a mass consciousness of the dangers of any disease is attested by the long and only partially successful campaigns of education that have, in the last twenty-five years, been so vigorously waged. Probably the most successful is that concerned with dissemination of knowledge concerning tuberculosis. The tuberculosis societies have succeeded in getting their story before the public by utilizing skilfully devised publicity methods. The annual country-wide sale of tuberculosis seals just prior to the holiday season brings to the public a stated annual reminder. In the sum-

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Read at the 76th Annual Meeting of the Missouri State Medical Association, Kansas City, May 1-4, 1933.

mer the "tuberculosis ball game" in St. Louis attracts an enormous crowd to an exhibition of our most popular pastime. The interest aroused by these annual events is taken advantage of by the societies to publish in newspapers and pamphlets the salient facts concerning the prevention and cure of this disease.

Another campaign, similar in purpose but differing in method, has been carried on by the American Society for the Control of Cancer. In centers where there are active chapters of this organization there has been widespread and authoritative information in regard to the recognition of early cancer by the physician, and a tabulation of danger signals for the benefit of laymen.

There is excellent ground for the belief that, so far as tuberculosis is concerned, there is a lessened incidence of that disease. A larger number of patients now come under the physician's care in that stage of the disease in which there is a fair prospect of permanent arrest. The results in the campaign against cancer are not as encouraging, but sufficient gain has been made to warrant the continuance of public educational efforts.

In the campaigns outlined those responsible for the dissemination of propaganda and education have been greatly aided by the indubitable fact, perfectly understood and appreciated by the most ignorant layman, that an actual bodily disease involving great suffering, permanent incapacity and early death, is the object of the information and the campaign.

If any campaign of education is ever to be undertaken to reduce the ravages of chronic glaucoma, the first obstacle to be overcome will be to get the public to understand that glaucoma is a disease that carries as much of a menace to eyesight as tuberculosis and cancer do to life. And that is going to be a difficult task.

Failing eyesight occurring in middle life and old age does not connote in the public mind the notion of disease; it merely suggests a visit to the optician to secure stronger glasses. Failing eyesight from chronic glaucoma and incipient cataract is not differentiated by the public from failing eyesight due to increasing presbyopia. That this should be the public attitude is not at all surprising when it is justified in probably 90 per cent of all such individuals.

Unfortunately for the victim of chronic glaucoma his "failing eyesight," at least in the early stages of the disease, does not impair that portion of the visual function which alone concerns the patient; namely, macular or central vision. So long as glasses of increasing strength enable him to see well at a distance and, with presbyopic addition, permit him to read fine print he does not become aware of the encroachment on his peripheral vision. In fact, most people are not aware of peripheral vision as an entity distinct from central vision.

Unfortunately, too, for the future ocular welfare of the patient with glaucoma, pain, that element in bodily disorders which above all others drives people to seek relief from physicians, is conspicuous by its absence. If present at all it is usually fleeting, not severe, partaking more of the character of a dull ache and is usually ascribed to "neuralgia," or to a reflex from a disordered stomach. Foggy vision and rainbow rings, not constantly present, merely suggest to the patient that he is probably "a little bilious" and that a brisk purge will set him right; and often enough the brisk purge is followed by a cessation of his ocular signs. Hence he is confirmed in the correctness of his own interpretation of the origin of his eye trouble and continues his daily life blissfully ignorant of its true nature.

The foregoing probably represents a fairly accurate sketch of the attitude and interpretations and beliefs of the average patient with early chronic glaucoma. Some, indeed, do not seek any kind of advice. They are the careless, the indifferent who, so long as any ailment is not actually incapacitating, prefer to ignore it. But there is another type of individual who is greatly interested and perhaps overly concerned with any novel manifestation of bodily function. In him is aroused a suspicion that all is not well with his eyes and he is likely to appeal for guidance, either to the optometrist or the family physician.

It has been my experience, shared, I believe, with many colleagues, that whatever information he receives from either of these sources does not lead to a recognition of the existence of glaucoma, and hence no steps are advised or taken to check the progress of the malady. The optometrist, though equipped with a smattering of knowledge of intra-ocular disease and its usual symptoms is, after all, mainly concerned with the sale of a pair of spectacles. He may listen with a varying degree of interest to a recital of the foggy vision, the aching eyes and the rainbow rings; but if he can succeed in finding a lens combination that will elevate central vision to normal or nearly so, and can find a presbyopic addition that will enable his client to read J 1, the complaints of the patient recede into the background of his mind. If they are thought of at all they are considered to be merely manifestations of eyestrain which, it is hoped, the new glasses will relieve. Should there be found a difference in visual acuity, or should the

best efforts of the optometrist fail to elevate the vision of one eye to that of its fellow, then it is possible that the patient may be advised to consult an ophthalmologist.

Now, what if the appeal should be made to the family physician? Every conscientious physician should and will base his opinion of the nature of an internal malady on the history, the patient's complaints, a thorough physical examination and the results of laboratory findings. Within the limits of his knowledge and everyday experience he will serve the patient well in respect to diagnosis, prognosis and treatment. But what of the patient with failing eyesight which has not been helped by changes of glasses? Does the physician exercise the same care in establishing the diagnosis that he does in determining the diagnosis of a lobar pneumonia or a chronic or acute appendicitis? The answer, in most cases, is "No." The absence of serious ocular disease is too often assumed because there are no external signs of disease. The lids are not swollen, the conjunctiva is not congested, there is no discharge, the cornea is clear, the iris markings are distinct and the pupils react to light. Above all, there is no pain.

Concerning this aspect of the problem, permit me to quote from a paper[1] read before the Kansas Medical Society:

> Some sufferers, dissatisfied with their glasses, begin vaguely to suspect that something is wrong and appeal to the practitioner for advice. Upon him (did he but know it) rests a heavy responsibility, one fraught with grave potentialities. Upon his answer may depend the momentous issue of future blindness or future sight.
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> It is not unlikely that the suspicion of "cataract" has entered the mind of the patient, and all too often this erroneous and fatal mistake is confirmed by the improper advice of the family physician. I take it that the "snap judgment" in practically all such cases is that the trouble is "cataract." Based on this erroneous diagnosis, improper advice is given, advice which leads to delay in seeking expert examination and hence delay in securing adequate treatment.
>
> Why is this sad error repeated day in and day out? The reason is not far to seek. Cataract is much more frequently the cause of failing vision than chronic glaucoma. It is not unlikely that in the nine preceding cases of this sort that have been brought to the attention of the physician the trouble was actually cataract, and the advice to "do nothing until the cataract is ripe," if not strictly in accord with the best ophthalmological opinion, did not preclude the eventual restoration of vision by operation. But the tenth case was not cataract, but glaucoma, and when after the lapse of years, the blinded eyes are presented to the ophthalmologist it becomes his embarrassing duty to explain to the physician the true nature of the case and to try to square him with the patient whom he has permitted to drift into irremediable blindness.
>
> And how simple it is to avoid this pitfall! Let us grant that the diagnostic ability of the practitioner is insufficient to distinguish between chronic glaucoma and cataract. If the practitioner will assume that every case of failing vision in an elderly person not satisfactorily helped by glasses, and in which the patient himself suspects that "something is wrong," is glaucoma, he will have discharged his primary obligation to the patient. Knowing the hazards of delay in glaucoma, the practitioner will insist on an immediate examination by the most competent ophthalmologist of his acquaintance. If the condition prove to be cataract in an early stage the ophthalmologist can greatly aid vision by careful adjustment of glasses, local treatment, and hygienic regulation. If early glaucoma be present, appropriate treatment will give the patient the best chance of retaining vision.
>
> By this simple change in viewpoint by the family physician the number of cases of chronic glaucoma that reach the office of the ophthalmologist beyond the possibility of help by treatment or operation, will be enormously lessened.

Most of the glaucoma patients that come under my observation arrive at that stage of the disease when one eye is reduced to seeing the larger letters at one meter, with the visual field contracted to within twenty degrees of the fixation point, with the optic nerve deeply cupped and far advanced in atrophy, and the tension anywhere from 40 to 60 (Schiotz). In the fellow eye the disease has progressed to the point of some impairment of central acuity, moderate contraction of the field, a well marked cup with some evidence of beginning atrophy and elevated tension (usually less than in the fellow eye). Is my experience exceptional?

Confronted with such a situation, the ophthalmologist is apt to feel the same resentment that the gynecologist does when confronted with a neglected and inoperable case of cancer of the uterus. When one realizes what might have been accomplished by judicious management had the patient come under observation in the early stage of glaucoma in the eye first involved, one is aroused to righteous indignation. What is to be done in the circumstances? It is entirely certain that operation is indicated in both eyes. It is equally certain that it will not benefit the worst eye visually, and it is probable that this eye will continue to drift into blindness. If we can hold the other where it is we may congratulate ourselves. But it, too, in the presence of signs of beginning atrophy does not offer a favorable outlook.

Every glaucoma must have its beginning, and among the multitude of middle aged and elderly people who come to us for visual aid there is a certain percentage, small though it be, of early glaucoma. Mr. and Mrs. John Citizen may think that they come to us for a fitting of glasses; in reality they come, relying on our reputation for superior knowledge, for a

thoroughgoing ocular survey to determine the beginning of disease or, in its absence, to get information on how to avoid it. It is no light responsibility that we assume in declaring to an elderly person that there are no signs of glaucoma in his very precious pair of eyes. If we base our assertion on the results of a perfunctory and incomplete examination in which no signs of glaucoma or preglaucoma are found, we may be betraying the trust that has been imposed in us. There is no deeper resentment than that evinced by a patient toward a medical adviser who, whether through ignorance or carelessness, has failed to detect the beginning of a serious disease that comes to light through the more meticulous examination of the next physician consulted.

Every ophthalmologist, no matter how experienced and painstaking, has failed in some cases to detect glaucoma in its earliest stages. The signs of beginning glaucoma are difficult of detection and our present diagnostic methods are not always adequate. I have often wondered what increase there would be in the percentage of recognized early glaucoma if every ophthalmologist should regard every patient of 45 or over, regardless of his present complaints or the presence of signs of some trivial trouble —conjunctivitis, presbyopia, etc.—as the possible possessor of "preglaucomatous eyes"; if the attitude should be, "these eyes are guilty of glaucoma until I prove them innocent." To prove them innocent would be no easy task; certainly no convincing proof could be adduced on the basis of a perfunctory examination. Therefore, if my position is tenable, every patient of 45 or over should receive as complete an ocular survey as if indubitable symptoms or signs of glaucoma were present.

But I seem to hear protesting voices: "That fellow is proposing the impossible." "How can I, with a waiting room full of impatient patients, with limited office hours, with clinic responsibilities and hospital duties, take the time to put my presbyopic patients through a full diagnostic routine?" "Why, even if I had the time, my busy business man would not stand for what he would regard as foolishness; he wants a pair of glasses and wants them in a hurry." Let us grant that there are practical difficulties in the way of securing a complete examination. As in so many other affairs of life, the ideal may seem to be impractical of attainment. Nevertheless, much more could and should be done than is currently done. By enlisting the aid of the assistant or office technician certain examinations can be routinely performed that are now entirely omitted without sacrifice of more time than the practitioner can spend or the patient is willing to give. Let us enumerate them.

(a) *Family History of Glaucoma.*—There is a growing understanding among intelligent patients that there is a family tendency to glaucoma. Sometimes patients appear with a self-made diagnosis of glaucoma—not always mistaken by any means—and proffer the information that a father or uncle "went blind from glaucoma." The recollection of the slow destruction of vision in a beloved relative is often very vivid and remains lastingly either as a memory or as a family tradition. Especial care should be made in the examination of such patients if only to relieve apprehension.

(b) *Tonometry.*—Every presbyope should have the benefit of several tonometric measurements. Intra-ocular pressure is apt to vary somewhat at different times in the day; therefore, if possible, the several estimations should take place morning, noon and afternoon of two consecutive days. The presence of normal tension at all these tests would not definitely exclude glaucoma; the presence of increased tension at one or more tests would not necessarily assure the diagnosis of glaucoma, but it would be highly suggestive. The presence of tension persistently higher in one eye than in the other should awaken a strong suspicion of the presence of glaucoma. Many careful clinicians are following in the footsteps of Haden[2] who insists that tonometry should be as much a routine in ocular examinations as urinalysis is in the general physical examination. He supports his thesis by a recital of cases in which increased tension was noted often in one eye, sometimes in both eyes, and in which other tests failed to disclose any other signs of glaucoma. Some such cases he has followed for a long time without finding diminution of vision, gross changes in the fields, glaucomatous cupping, or other classic symptoms of glaucoma. But, as he states, "Unless remedial measures are used to bring the tension to normal limits, these secondary changes ultimately and inevitably occur."

In the management of patients in the doubtful (or preglaucomatous) period, as well as of those in the early stages of the disease, another great advantage of oft repeated tonometry has been pointed out by Curdy[3]; namely, that the frequent use of the tonometer would bring about knowledge by the public of ocular hypertension similar to the present knowledge of vascular hypertension. The latter is recognized as a condition requiring continued attention but does not excite visions of impending death. In like manner, ocular hypertension might come to be recognized as a condition requiring the con-

tinued attention of the ophthalmologist without exciting visions of impending blindness. Moreover, the use of the term *ocular hypertension* in these doubtful and early cases would obviate the necessity of the term *glaucoma* which, to the patient, frequently signifies early and inevitable blindness.

(c) *Visual Field.*—One should get some idea of the peripheral field in all presbyopes. For our routine survey the rapid confrontation test will suffice in most cases. More precision is required in estimating the size and configuration of the blind spot and possible paracentral defects within the thirty degree circle. For this purpose a hand perimeter, a stereocampimeter, or the tangent screen must be employed.

In this connection, it may be pertinent to refer to a statement by Traquair in his book, "An Introduction to Clinical Perimetry": "Since the field changes as the result of the glaucomatous process, it is evident that their detection, even in their earliest form, does not indicate the onset but the presence of the disease. The recognition of glaucoma, in what may be called its preperimetric stage, is developing, and, as our knowledge and skill in this respect increase we may expect to find the elicitation of the field changes is mainly useful in supporting and confirming rather than in initiating the diagnosis."

(d) *Homatropine Test.*—Having advocated and used homatropine as a cycloplegic for the estimation of the refraction of most of my patients between the ages of 45 and 60 and never having observed the development of a true glaucomatous attack from such use, I look with favor on the use of a weak (1 per cent) solution of this drug in presbyopes suspected of glaucoma. Tension is taken before the instillation and then at varying intervals while the pupil is dilating. A definite rise of tension even though moderate should, in my opinion, be sufficient to classify the eye as preglaucomatous. Needless to say, any such mydriasis is promptly counteracted with physostigmine or pilocarpine.

(e) *Knapp's Adrenalin Test.*—Repeated instillations of adrenalin 1:1000 was found by Knapp[4] to produce dilatation of the pupil in a fairly high percentage of glaucomatous eyes the mydriasis not occurring following similar instillations in normal eyes. Schoenberg,[5] having in mind the hereditary tendency of the disease, applied this test to 35 patients, all sons and daughters of thirteen patients with primary glaucoma, and found that about 50 per cent gave a positive reaction.

(f) *The Nerve Head.*—Often the beginnings of glaucomatous excavation on the temporal side of the disc are missed. Excavation, physiological, atrophic and glaucomatous are marvelously brought out by binocular stereoscopic ophthalmoscopy (Gullstrand, Bausch & Lomb). Even without this aid an experienced ophthalmoscopist, using the ordinary ophthalmoscope, can detect the earliest excavations if his observations are made with sufficient care.

(g) Increasingly, clinicians are coming to the view that glaucoma is to be regarded as "a sick eye in a sick body." The patient with early glaucoma should be given the benefit of the most searching general investigation to discover if possible "any diseased conditions of the body that might be regarded as etiologic factors" (Haden).

Another test that may in the future be of great value in the diagnosis of early glaucoma is the determination of the light minimum. Derby[6] has shown that in some eyes without perimetric change there occurs a slight but constant rise in the light minimum. Another interesting point noted was that there occurred a definite drop in the light minimum curve after the use of pilocarpine. It is greatly to be hoped that this test which, owing to the cumbersomeness of the apparatus has hitherto been strictly a laboratory one, may be simplified for general clinical use.

Allusion should be made to Kronfeld's test.[7] In a suspected eye the anterior chamber is emptied of aqueous by paracentesis. The tension is taken every thirty minutes for three or four hours. If tension rises high, say 60 Schiotz, the eye may be considered glaucomatous. If the test be applied to a nonglaucomatous eye the tension may rise moderately (not over 30 Schiotz) and returns to normal within two hours.

ATTITUDE OF PATIENTS

The reaction of patients to glaucoma is extremely varied. A small minority who possess high intelligence and an equable temperament pursue their ways unruffled. They convert their disease and its treatment into a hobby and carry out with meticulous precision all the details of treatment. But these are the *rarae aves* of the glaucoma aviary. Far more frequent are those who grow tired of the unremitting "drops," especially as the guarded prognosis of the ophthalmologist is interpreted as a confession of inability to "cure" the disease. The early enthusiasm wanes; long periods of no treatment occur. Finally, there is the return to the office or clinic with heightened tension, narrowed fields, impaired central vision and pain.

And what of the indigent patient who for economic reasons must carry his disease to the public eye clinic? If the disease in the private

patient is difficult to manage, whether the treatment be medicinal or surgical, how much more difficult and unsatisfactory have been our efforts in the past to deal satisfactorily with our clinic patients. It has been my experience that such patients do not arrive at the clinic until one eye is pretty well done up and the other fairly well along, with greatly contracted field and some impairment of central acuity. An eye clinic patient is notoriously unreliable and careless in his attendance and obedience to instructions. Berens[8] in a survey of New York eye clinics found that in the glaucoma group first studied, 81 per cent made three visits or less. Assuming that 30 per cent of these made other clinic contacts or consulted private physicians, there remains 50 per cent who slowly drifted down the stream to inevitable blindness. Most workers in public clinics, realizing this frightful wastage of eyes, have reached the conclusion that it is folly to temporize with the clinic patient and that to protect him from the consequences of his own carelessness, operation must be urged in every case. There are two objections to this policy. First, the clinic patient has just as much right as the private patient to be given the benefit of prolonged medicinal treatment in an effort to hold the disease in check; second, the suggestion of operation is often the signal for the sudden and permanent withdrawal of the patient.

The value of social service in determining the multifarious maladjustments in the lives of dispensary and hospital patients has long been accepted as an absolute necessity. Indeed, there are few institutions dealing with indigent patients that do not find such a service indispensable. Somewhat tardily, perhaps, has the value of such service been recognized in ophthalmic clinics and hospitals. The pioneer worker in this field, the late George Derby,[9] strove unremittingly to develop an effective service at the Massachusetts Eye and Ear Infirmary. His earlier efforts concerned themselves with ophthalmia neonatorum; later, much effective work was done in the control and follow-up of children suffering with phlyctenular disease and with adults with ocular tuberculosis. Derby soon came to realize that the problem of the glaucoma patient could not adequately be solved unless a special worker were assigned to this field. Under the old system with a general follow-up many patients with glaucoma ceased to attend and, after long absence, returned with vision much impaired. In 1928 the National Society for the Prevention of Blindness was prevailed upon to place a special worker in this field at the Massachusetts Eye and Ear Infirmary. As Derby says, "Many patients with glaucoma who attend our eye clinics go blind because we have not the proper machinery and organization to handle them in a suitable manner. The keystone of the solution of this problem in the hospital clinic is, I believe, intensive social work."

How eminently successful this effort proved is attested by the great gain in the number of glaucoma patients under observation—from 250 in 1927 to 740 in 1930—and in the same period the number of glaucoma operations doubled. The glaucoma social worker sees each glaucoma patient every time he comes to the clinic. She tells him the whole story of the disease. She learns his personal problems; and, having thus become the friend of each patient, she is often far more successful in persuading the patient to consent to operation than is the doctor.

As Berens well says, " 'Follow-up' in the sense that the patient is allowed to escape and is then pursued, should not be necessary. There should be developed instead a kind of 'follow-through' or 'case control' which anticipates and prevents the usual causes of uncompleted treatment." The results attained at the Massachusetts Eye and Ear Infirmary attest the value of this kind of highly specialized social service. The example of this institution should be followed by all eye clinics and hospitals.

SUMMARY

A large percentage of blindness from chronic simple glaucoma could be prevented. The means to this end are:

1. Education of the public to seek expert advice when eyesight fails in middle age and old age.
2. Education of the optometrist in the signs and symptoms of early glaucoma.
3. A change of viewpoint of the family physician who should always have uppermost in his mind the possibility of glaucoma as a cause of failing eyesight in elderly persons.
4. The inclusion, in the routine examination of presbyopic eyes by the ophthalmologist, of such tests as will bring to light signs suggestive or diagnostic of early glaucoma.
5. Detailed instruction of the patient as to the nature of his disease and the necessity for prolonged and unremitting care.
6. An intelligent follow-through or case control in public eye clinics of all sufferers from this disease.

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DISCUSSION

Dr. Henry C. Haden, Houston, Texas: I want to thank you for permitting me to talk to you. It is very nice of you and I am glad to be with you.

I think Dr. Green's paper is one of the most valuable contributions that I have heard presented before a medical society for a number of years. It is true that in eye societies there are discussions in regard to the nature of glaucoma and of operations to check its ravages, but I regret to say that very little has been done of a practical nature to facilitate its early diagnosis. I think it is a good plan to read papers such as Dr. Green has presented before general medical bodies, especially county medical societies; for although the practitioner has learned a little something in college about chronic simple glaucoma, in the pursuit of his busy life it is forgotten and he knows very little about its symptoms and diagnosis.

Educating the public is a different matter. It is more or less easy to talk about cancer, or tuberculosis, things they can see and feel; but glaucoma simplex is so intangible that it is hard even for a doctor to get into his head, and it is so slow in its development that it is very hard for the public to appreciate its seriousness. A certain amount of propaganda has been put out by the American Medical Association, particularly in their publication *Hygeia,* but it is read by only a limited number of people. The thing we should do, and what we have tried to do for a number of years, is to educate the public to understand that when they are measured for glasses they should have a complete examination of the eyes to determine whether there is any lesion of the eye other than the refractive error before the glasses are prescribed. If we could educate the public to know the value of this examination then instead of resenting it they will begin to demand it. I can honestly say that in all the years I have been in practice I have never prescribed glasses without making a thorough examination of the patient's eyes and acquainting myself with their condition before doing so. In the last ten years I have added to this routine tonometric measurements of intra-ocular tension.

In the ten years that I have been making tonometric measurements in every routine examination I have made some very interesting observations, and I have gotten the people in our community to a certain extent "tension-minded," so that when they go to other doctors they request that their tension be measured.

I know of no way now practicable in the office of determining increase in intra-ocular tension before the classical symptoms appear other than routine tonometric measurements. Increase in intra-ocular tension may exist for a long time before changes occur in direct vision, visual fields or the optic disk. If it is discovered in this stage, what is it to be called? Many ophthalmologists contend that it is not glaucoma. Personally, I believe that it is for all the cases that I have followed have ultimately developed the classical symptoms. This difference of opinion makes awkward situations: the patient not knowing what to believe, may lean to the favorable opinion and discontinue treatment with ultimate loss of vision. Dr. Curdy's suggestion that they be simply told that they have a rise in intra-ocular pressure is an excellent one. I should like to speak of three cases which illustrate different phases of chronic simple glaucoma. The first demonstrates the value of measuring intra-ocular tension in every case.

Some years ago a woman came to see me with an attack of acute glaucoma in an eye that had been injured three years before. Upon examination I found the lens of the eye opaque and by palpation the eye of stony hardness. The roentgen ray revealed a foreign body in the globe. The other eye was apparently normal, with 6/5 vision. As a routine procedure I made tonometric measurements of each eye. The tension of the injured eye was 70 mm., that of the other eye 60 mm. (Schiotz). Upon questioning the patient, I discovered that her mother was blind of glaucoma at 42 years, a sister at 43 years. Two maternal uncles, an aunt and a cousin also had glaucoma. The injured eye was removed and sections showed a normally shaped disk with a physiologic cup. The visual fields of the other eye were normal. She remained under observation for several months during which time she used eserine. The pupil was well contracted but the tension was never below 40 mm. (Schiotz). When last seen the vision, visual fields and fundus were normal. The patient declined operation and moved to another state.

The second case illustrates the effect of irritation of the nervous system upon the eye. A woman, fifty years of age, who had been coming to me for a number of years for correction of her refractive error, had an operation for the removal of hemorrhoids and a resulting stricture. She suffered great discomfort and for a year had frequent dilatation of the stricture. Toward the end of the year she began to notice that after becoming excited at games of cards she would see halos surrounding lights. As she suffered no eye discomfort and as the halos disappeared after rest, she ignored them for some time. Upon examination I found no pathologic changes in the eyes and with her correction the vision of each eye was normal. The intra-ocular tension measured 18 mm. and the visual fields were normal. I asked her to return to me the first time she had an attack during the day. Some weeks afterward her servant did not appear and she felt that she had to clean the ice box. Having a very violent temper, she became furious and immediately the halos appeared. She came to see me at once. I found the direct vision of each eye reduced to 6/7, and there was a slight haze of the corneae. The tension of the right eye was 60 mm., that of the left 65 mm. I prescribed a myotic, which she declined to use stating that from her previous experience she knew that the attack would disappear if she would lie down and rest and take aceticylic acid. A few hours later she telephoned me that the halos had disappeared and her vision had cleared. The following day I found the vision of each eye 6/5, the corneae clear and the tension 18 mm., each eye. I did not see her for two months, during which time she advised me that she had no more attacks except on Saturday nights when she played poker. Later she returned for observation and at times I would find the tension as high as 30 mm. but without any subjective symptoms. I insisted, therefore, that she use pilocarpine, which she

has done for the last year. I have not seen her, but she has sent me word that she plays poker and becomes angry but has no halos.

The third case illustrates the effect of operation in the preperimetric stage. A woman of fifty-one years of age gave the following history: Her mother had had glaucoma. One eye had been removed, the other operated on but practically blind. The patient, being concerned about herself, consulted an ophthalmologist who found her intra-ocular tension increased and had prescribed a myotic. Upon examination I found, with contracted pupils, the direct vision normal, visual fields normal, fundi normal, tension 19 mm. (Schiotz). When the pilocarpine was discontinued the tension rose to 40 and 50 mm. but there were no other objective or subjective symptoms. She continued the myotic for one year at the end of which the tension was 18 mm. Now, however, when the myotic was omitted, not only would the tension rise but the corneae would become hazy and direct vision become impaired. I made a peripheral iridectomy in the right eye. That was five years ago. When examined last month, with a correcting glass, + 1.00 cyl. axis 180, her vision was 6/5. The vision of the eye unoperated on in which she was still using pilocarpine without a glass, was 6/5. With reading glasses her near point was normal for her age. The visual fields of each eye were normal. The fundi were normal. It is possible that the patient's state of mind since the operation contributed to the preservation of the original status of the other eye, for she feels that the disease has been checked in the eye operated on, and she is relieved of the dread of becoming blind as did her mother.

USE OF LIVER EXTRACT INTRAVENOUSLY IN TREATMENT OF PERNICIOUS ANEMIA

Raphael Isaacs, Cyrus C. Sturgis, S. Milton Goldhamer and Frank H. Bethell, Ann Arbor, Mich. (Journal A. M. A., March 4, 1933), gave 1,000 intravenous injections of liver extract to 140 patients with pernicious anemia. They observed that substances causing reactions when liver extract is given intravenously may be removed by treatment with permutite and acetone. Intravenous injections of the extract made from 100 to 125 Gm. of liver may be given weekly to patients with pernicious anemia until the red blood cell count is normal, then once every month as a maintenance dose. Proper checks should be used to determine the dosage required for each individual patient. A characteristic "reticulocyte response" is induced by this type of therapy, but the average maximum percentage is higher than that reached after about forty times as much material as is usually taken by mouth in divided doses daily. The subjective changes and neurologic improvements are marked features with this type of therapy. The intravenous method presents a distinct economy in the use of liver material and allows the patient freedom from daily medication, and a nonlimited diet. It also assures the physician that the patient is taking a known dose of potent material at regular intervals. A favorable response is obtained by the intravenous use of liver extract in a small group of patients with pernicious anemia who do not respond to liver or desiccated hog stomach when given orally.

RELATIONSHIP BETWEEN DISEASES OF THE NOSE AND THROAT AND PULMONARY DISEASES

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In connection with the study of this subject, it is well to remember that in elderly infants and very young children the nasal sinuses, on an anatomical basis, have clinical significance. The maxillary sinuses particularly, at the age of two or even younger, are large enough to cause serious disturbances if and when infected. They are often large enough at a much earlier age to have clinical significance. Next to the maxillary sinuses the ethmoidal cells are of clinical significance in the young.

In children with bronchiectasis or with asthma the trouble often dates back to the age of two or three years. The parents give a definite history of repeated colds making their appearance at that time. In the course of three, four or more years after the appearance of these so-called repeated colds, evidences of pulmonary disturbance appear. Even with a most meticulous history it is difficult to determine the exact etiological factor in the production of upper respiratory upset at the age of two years. So often these patients with chronic bronchitis and bronchiectasis associated with sinus trouble prove to be allergic. In the nose in addition to the allergic manifestations we find actual infection. The difficulty is in determining which condition was first present early in childhood, the allergic sinusitis or the infection of the nasal sinuses.

It is fortunate from the standpoint of therapy in these mixed cases that it is not necessary to know definitely which factor was manifest first. If we are to render the best service to a child eight or ten years of age suffering from bronchitis or bronchiectasis with an allergic rhinitis and pus in the nasal sinuses, we must control the allergic trouble and eradicate the infection. It is best to control the allergic trouble in so far as possible first. After this has been accomplished, the nose and nasal sinuses should be attacked by the rhinologist in the same way as if no allergic disturbance were present. I mean to say that because a patient is allergic is no reason why a deflected septum or an exostosis or a chronic infectious nasal sinusitis, which would be operated on if the individual were not allergic, should be neglected because of the presence of allergy. A diagnosis of allergy does not contraindicate surgical procedure.

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It is important that there be no misunderstanding in this matter. Many patients present the symptoms of infection in the nasal sinuses confirmed by roentgenograms where the trouble is due to an allergic disturbance alone. It is important that an exact diagnosis be made; that an allergic sinusitis be never operated on. Such a procedure would only result in the most serious consequences to the patient.

In young children the differential diagnosis between allergic disturbance in the nose, infections of the nasal sinuses and a combination of infectious and allergic sinusitis is not difficult. A meticulous history, repeated examinations and careful study are often necessary to accomplish this. A most careful search must be made for a history of allergic disturbances in other members of the family. We must know all about the presence or the absence of allergic disturbances in the individual examined outside of the nose. A cytological examination should be made of the contents of the nasal sinuses or of any discharge coming from the ostia. The presence of numerous eosinophils in this material is very suggestive of an allergic rhinitis but does not definitely diagnose it. Trauma of the nose, parasitic disease, the administration of digitalis and other things occasionally produce nasal eosinophilia. There are enough things which may produce this condition to contradict the statement that nasal eosinophilia means allergic rhinitis. Certainly the absence of eosinophils in the nasal discharge does not exclude a diagnosis of allergic rhinitis. Repeated examinations of the nasal discharge should be made. It is only in this way that a nasal eosinophilia if present may be discovered. The presence of polymorphonuclear neutrophils in the nasal discharge always means infection even if there are eosinophils in the nasal discharge. A bacteriological study of the nasal sinuses should be made. If there is no discharge from the sinuses a little normal salt may be introduced into the sphenoid and maxillary sinuses and then aspirated for bacteriological study. The presence of pathological organisms in the sinuses does not necessarily mean infection but usually when they are present the sinus is infected.

The diagnosis of infection of the nasal sinuses from the roentgen ray plate is not a justifiable procedure. An allergic sinusitis, an edema of the sinus lining from nephrosis will produce the same picture as infection. Repeated roentgen ray examinations showing the variation from time to time in the thickness of the sinus lining is very suggestive of an allergic disturbance. The rhinoscopic examination of the case is the most important of all. Pale edematous mucosa without palpable glands in the neck with an abundance of clear discharge is always suggestive of allergic rhinitis. On the other hand, a reddened, inflamed mucous membrane with chronic pharyngitis and palpable glands in the neck is a condition not due to an allergic or an edematous process. In every case a thorough blood examination should be made as an aid in the differential diagnosis.

The differential diagnosis between allergic rhinitis, infectious sinusitis and the mixed lesion has been stressed. We must have an exact diagnosis of the nasal condition before we can have any conception of the possible relationship between a nasal disease and a lung condition. In children with an allergic sinusitis, it is easily conceivable that coexistent pulmonary disturbance may be due to the same type of swelling being present in the bronchus that we have in the nose. This blocks the bronchus and may simulate a mild bronchiectasis. The rhinological condition and the pulmonary condition are both due to the same thing.

Infection about the nose and throat exerts a deleterious influence upon chronic bronchitis and bronchiectasis in two ways and may be responsible for a so-called sinus lung, viz.: The infectious material may be aspirated, or it may be borne by the blood stream. Quinn has shown that if a catheter is placed in the nose before the individual goes to sleep, and if a mild sedative is given to the person, then while he is asleep lipiodol be dropped through the catheter into the nasal pharynx, much of the lipiodol will be found in the bronchi in the morning. If patients under general anesthesia are examined through the bronchoscope immediately following the operation, streaks of blood will often be found in the bronchi, the blood having been aspirated against the force of the ciliary action. Fetterolf has shown that in tonsillectomized dogs there are infected thrombi in the veins of the wound; that these thrombi disintegrate and small pieces enter the venous channel and may lodge in the pulmonary tissue. It makes no difference which is the route of infection. The sinus lung and chronic bronchitis particularly, and bronchiectasis to a less extent, are favorably influenced by the eradication of infection about the nose and throat. I know of nothing that has a more beneficial effect on bronchitis in children than the removal of infected faucial and pharyngeal tonsils. Most cases of bronchitis in children are descending infections and had better be attacked at their source in the nose and throat.

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ANORECTAL INFECTION

ITS RELATION TO GENERAL MEDICINE

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Anorectal diseases may be classified as those due to (1) structural weakness (hemorrhoids, prolapse, etc.), (2) infections, (3) neoplasms, and (4) injury. Naturally, there is much overlapping but this discussion will be limited to infection and its relation to general medicine with structural weakness and injury considered only as related to infection.

SOURCE OF INFECTION

The profession has for so long thoughtlessly interpreted anorectal disease in terms of "hemorrhoids" that the role of infection in the production of anorectal disease is seldom considered. It is my belief that a majority of anorectal infections are secondary to respiratory tract or oral infections, such as pyorrhea, septic sore throat, bronchitis, etc. A few are caused by acute or chronic intestinal tract infections, such as enteritis, gallbladder disease, etc., and a very few are acquired from a normal intestinal flora. Enema tips and rough paper also account for a few.

PREDISPOSING CAUSES

Anatomically the rectum is predisposed to trauma by its funnel-like shape. The diameter of the funnel neck is primarily determined by the fascia but it is more strictly determined by the tonicity of the powerful sphincter muscles. In an individual with a tendency to spasm of the intestinal tract, the spasm is commonly more marked at definite points, such as the pylorus, rectosigmoid or anal sphincters. Should this tendency to spasm be especially marked in the anal sphincters the outlet is further narrowed which predisposes the rectum to mechanical injury when the fecal mass is forced from a larger through a smaller opening. When injury occurs the spasm is increased and a vicious circle is established. Functionally, the rectum is predisposed to infection by its unfortunate location. Its normal physiology is hampered by voluntary suppression, then artificial stimulation. Trauma from constipation predisposes to infection. A coating of mucus is the normal protection of the rectal mucosa and an acute diarrhea removes the normal protecting mucus leaving the mucosa open to chemical irritation and infection. Liquid stools from laxatives or soapsuds enemas to a lesser degree do the same thing. When an organ designed for the elimination of semisolid matter is constantly exposed to irritating liquid matter the ground is prepared and some seeds will take root.

LOCAL COURSE OF INFECTION

The sequence of events is apt to be something like this: The individual has, for instance, a throat infection. Not all the organisms swallowed are killed in their passage through the intestinal tract, especially when hurried through by laxatives. While most of the infective material is carried through the anal outlet, small particles may be caught in the anal crypts, especially in the individual in whom these crypts are abnormally deep. An acute cryptitis results. A concrete example of the relation of upper respiratory infection and anorectal infection is that of Miss B. H. whom I have observed over a period of four years. She is subject to frequent attacks of sinusitis and two or three days following each attack she develops soreness and pain in the rectum. Rectal examination discloses definite tender points at the anorectal line which upon anoscopic examination prove to be red, swollen crypts, a definite cryptitis. Many cases of so-called acute hemorrhoids, magically cured by hemorrhoidal ointment or suppository, are such acute infections. Watch your rectal cases and see if they do not frequently have acute exacerbations of pain following respiratory infections or enteritis. And, of even more importance, is that reinfection may occur if the original source is not removed. Many of these people give a history of much dental work, tonsillectomy, nasal sinuses drained or gallbladder removed.

I do not wish to emphasize cryptitis as a disease entity but merely draw to your attention that the anal crypts bear the brunt of these infections. They are located at the neck of the funnel or at the line of trauma. Being at the upper margin of the internal sphincter, their circulation may be interfered with by spasm and the presence of varicose veins. The lower border of the crypt is anal skin and its sensory nerves account for the pain. The crypts may be of such a depth that they form pockets. While an extensive proctitis is not uncommon, the first and greatest reaction is usually in the crypts and they are the last to clear up. An acute cryptitis may become chronic. A patient may or may not complain of soreness. This low grade infection invades the submucosa and weakens the veins and their supporting tissues to such an extent that hemorrhoids develop or prolapse of the mucosa occurs. The infection drains down beneath the anal skin and its sagging, from loss of tone, results in the formation

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of the well known skin tab. Skin tabs themselves are of no consequence except that their presence suggests chronic inflammation above.

The infection from a crypt may gradually burrow down beneath the anal skin and weaken it so much that a slight overstretching causes a tear and a fissure results. It reminds one of old rubber which has lost its elasticity and cracks when stretched. Most fissures occur posteriorly because the posterior quadrant is subjected to the greatest stretching where the sphincter muscle is weakest. The fissure may fail to respond to treatment and even though it heals will break open repeatedly because it is secondary to the infection of the crypt. It will usually not remain healed permanently until the infected crypt is removed, the fissure excised and the subcutaneous tissues about it thoroughly drained.

Papillae are so closely associated with the crypts that their involvement is to be expected. An enlarged papilla with a pale edematous tip indicates anorectal irritation, usually infection. Infection may not remain limited to the superficial structures but may penetrate deeply in the form of an abscess. A large percentage of the abscesses have the characteristic colon bacillus odor and are probably caused by this organism. However, the tissues of the anorectal region have necessarily developed a high degree of immunity to the colon bacillus and it is very probable that the resistance of the tissues has been lowered by a previous infection with a non-pus producing organism and the colon bacillus is a secondary invader. In a search for foci of infection the presence of fissure, fistula and sinus should not be overlooked.

Hemorrhoids may result from or be the cause of infection. Many cases of hemorrhoids result from an inherent weakness of the hemorrhoidal veins similar to varicosities of the legs, scrotum, or broad ligament, their development being either caused or hastened by increased venous pressure from any cause. Such hemorrhoids may be symptomless or harmless for years but more often their encroachment upon the lumen of the bowel leads to constipation, trauma and infection. On the other hand, chronic infection with its infiltration, edema and loss of tone allows dilatation of the veins with eventual replacement of their elastic tissue by fibrous tissue. It is in such cases, in which the infection cannot be eliminated, that there is an early return of the hemorrhoids following injection treatment. The success of the injection treatment by fibrosing solutions therefore depends upon one's ability to properly judge the degree and probable course of the infection present. In the presence of pain and spasm, surgical removal is the only certain cure because only by that procedure is adequate drainage afforded.

RELATION TO GENERAL MEDICINE

How important is anorectal disease as related to general medicine? A famous orator of the Royal College of Surgeons of England, using "corns" as his theme, pointed out how really serious a drawback a deeply rooted corn might prove to be. We may realize how much more serious a lesion of the anorectal region may be when we consider that not only is the somatic nervous system traumatized by pain but that the sympathetic is irritated as well. As the continual dropping of water may wear away a stone so may an anorectal lesion deplete the nervous system, upset the normal mechanics of the intestinal tract and insidiously undermine the well-being of the individual. In a person with an unstable nervous system to begin with an apparently minor lesion in this area so richly supplied with nerves may assume major importance.

We will do well to take note of any anorectal abnormality and properly evaluate its importance in the general disease picture. In a long medical history a patient will often completely ignore his rectal symptoms, as he sees no connection between his so-called piles and other gastro-intestinal symptoms, nervousness, headache, backache or leg pains. Likewise, in giving his history of anorectal disease he seldom mentions other symptoms, such as abdominal pain, heartburn, etc. That there is a close relationship in many instances is attested by the remark of many patients following operation that to their surprise indigestion has been cured, epigastric pain has been relieved, or "colitis" has vanished.

The wrong interpretation of referred pain is demonstrated by the following case. For a number of years a patient had attacks of dull pain in her right upper abdominal quadrant suggestive of, but with no definite findings of gallbladder disease. Incidentally, she had hemorrhoids which prolapsed with each attack. With removal of the hemorrhoids the abdominal pain promptly disappeared. A year later she returned with a slight irritation in the rectum and with the upper abdominal pain and again she was promptly relieved by treatment of the rectal condition.

Malfunction or disease of the colon may hinge upon anorectal disease. It has always seemed extremely illogical to me to attempt treating a spastic colon or mucous colitis while ignoring the presence of a painful or obstructive anal lesion provided, of course, that other causes of irritation such as gallbladder or pelvic disease, allergy or faulty diet have been ruled out.

It is much like trying to empty a theater through the front door when the fire is in the lobby; due to hesitation at the exit there is bound to be confusion in the interior.

Alvarez has shown how irritation at a given point in the intestinal tract will produce waves of muscular contraction which travel in both directions. It is easy to assume that irritation produced in the anorectal region will produce waves of contraction which have no place to go but upward. The descending colon and rectosigmoid being one of the portions of the intestinal tract most susceptible to spasm, we may expect the picture so commonly seen on roentgen ray examinations, namely, spastic areas in the descending colon, or if this has been present for some time, a dilated, overworked cecum with regurgitation at the iliocecal valve. It is not uncommon for patients to complain of nausea following rectal pain, which is best explained by reverse peristalsis.

To obtain a true picture of anorectal disease we must recognize infection as a leading cause. To complete the picture we must recognize the sources from which the infection may arise, and we must recognize in addition to the local disturbance the remote effects upon the intestinal tract and the general nervous system. This close relationship between anorectal disease and general medicine enables the proctologist and medical man to be of mutual help in producing maximum results from treatment.

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PATHOGENICITY OF FUSIFORM BACILLUS AND SPIRILLUM OF PLAUT-VINCENT

Henry H. Lichtenberg, New York; Marie Werner and Esther Volckmann Lueck's, Chicago (Journal A. M. A., March 11, 1933), attempts at producing lesions in any way similar to those commonly attributed to the action of the Plaut-Vincent organisms by injecting pure cultures of fusiform bacilli into areas of traumatized tissue in guinea-pigs were unsuccessful. The fusospirochetal organisms were found in 45.4 per cent of tonsils removed from 108 children. In the same children these organisms were found in 91 per cent of the membranes that formed over the tonsillar beds after tonsillectomy, and usually in greater numbers than in the tonsils themselves. The organisms were found constantly in smears of the membranes that formed over traumatic ulcers produced in the mouths of guinea-pigs. Neither the injection nor the local application of sulpharsphenamine hindered the appearance of these organisms in the lesions in the mouth of guinea-pigs or hastened the healing of the lesions. Sixteen consecutive cases of severe ulcerative stomatitis in children all healed in from four to seven days without treatment. This compares favorably with the reports of cases treated with various drugs and other forms of treatment. The value of diagnostic smears for Vincent's organisms as a means of establishing a pathogenic relationship of these organisms to a suspected lesion is questioned.

SIMPLICITY IN THE TREATMENT OF ANORECTAL DISEASES

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It is my purpose in this short paper to cite many cases that can be cured of annoying anorectal conditions without hospitalization.

I am sure all of us are desirous of relieving worthy sufferers of their physical ills whenever possible and I am also positive all have patients who are unable to pay one cent at this period of our history for treatment. Hospitals on the other hand cannot afford the expense of caring for many patients who are unable to pay. I wish to bring to your attention some methods you can use in your office to relieve many anorectal cases, such as fissure, strangulated hemorrhoids, clots, abscesses and some fistulae.

Patients with fissure are probably the most frequent to apply for relief of severe pain. This pain begins at defecation and lasts for from minutes to hours and patients describe it as being a very severe burning sensation. Fissure bleeding is very slight but constipation and contraction are almost always present. Pain from the fissure causes sphincter spasm which aggravates the constipation.

Diagnosis can usually be made from the history of severe pain at stool which continues for some time afterward as a burning, throbbing sensation. On examination we usually find a small tab of skin posteriorly and at the anal margin. By introducing a few minims of 4 per cent cocaine solution, a small speculum can be easily inserted into the rectum and the ulcerated area or fissure can be viewed. Usually it does not appear sufficiently extensive to cause all the trouble the patients describe. A polyp is often found at the upper angle of the fissure.

The treatment does not require a general anesthetic nor hospitalization. Local anesthetic is usually satisfactory. I use one fifth of 1 per cent cocaine or 1 per cent novocaine. I prefer the cocaine because anesthesia is complete as soon as injection is made and the operation is over before the patient becomes unduly anxious or nervous.

Hypodermic injection can be started one inch from the anal margin in posterior median lines and the first injection should be the only pain felt in the entire operation as each succeeding puncture is made in tissue formerly infiltrated. Carry the infiltration toward the anal margin and then deep under the fissure. The purpose of the operation is to remove the ulcerated tissue and establish drainage. With these points

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in mind the skin is incised from the point of original hypodermic injection down to the muscle and into the lower angle of the fissure. The edges of the skin should be trimmed off on either side carrying this maneuver into the anus as far as the ulceration extends. Polypi above the fissure should be ligated and removed.

Rarely is it necessary to ligate bleeding vessels in this procedure. A small piece of gauze is placed in the wound and left there until passed out with the first evacuation, which should be induced by a physic the third morning after operation. This first evacuation causes less pain than the patients are accustomed to experience prior to operation. On the fifth day a gloved finger should be lubricated and introduced into the rectum and moderate traction made posteriorly in order to prevent healing of the skin to the opposite side before the wound heals by granulation from the bottom outward.

In this connection, I might add, hemorrhoids closely associated with this operative field may readily be ligated and removed by extending the local anesthetic to include them. Some operators suggest the severance at right angles to the fibers of the external sphincter but I do not see the advantage of extending the incision through muscle unless a fistulous tract can be found. After excision of the fissure divulsion can be satisfactorily accomplished before the effect of the local anesthetic disappears and thereby lessen the contraction of the sphincters.

A contraction of skin is almost always found in conjunction with an outside tab or sentinel pile in fissure cases. This contraction harbors infection and prevents proper toilet following defecation and must be borne in mind in correcting the fissure. It is done away with by severance and in removal of the fissure tract.

While this description has to do with fissures situated at the posterior portion of the rectum, which is the most frequent site of fissure, the same principles apply to fissure elsewhere about the margin of the rectum. These principles are, removal of the fissure, proper drainage of the area and divulsion while the local anesthetic is still acting.

Hemorrhoids or piles are as ancient as historical records of the human race and all sorts of treatment are offered for relief. Treatment should be based on the symptoms. Some hemorrhoids protrude and become strangulated; others can be replaced and give but little trouble except following evacuation; some bleed extensively, causing a lowered blood count and reduction in normal hemoglobin. Submucosal hemorrhage will ofttimes gravitate to a point under the anal skin and here form a painful clot.

It is quite easy to relieve the protruding type of piles by treatment under local anesthesia regardless of whether they are the bleeding ulcerated type or merely the protruding type. In treating these piles, the injection of local anesthetic is first started by introducing the needle into the mucosa which covers the dilated veins or piles. As the internal pile becomes distended the shaft of the needle may be used as leverage and by moderate outward pressure the distention together with expulsion effort on the part of the patient will bring out the injected pile tissue sufficiently to be caught in the grasp of a hemostat. The anesthetic also infiltrates the outer skin tab which can be removed without pain. The pile is best excised by scissors, the incision being external to the forceps grasping the pile. This incision is carried upward to a point even with the upper end of the blade of the hemostat, and here a stout ligature is tied about the remaining pedicle of the mucosa. A generous portion of the ligated tissue is snipped off with the scissors to aid in the reduction of odors from putrefaction. This amputation must be far enough away from the ligation to insure firm holding of the ligature. If the ligature should slip from the stump it would probably require a general anesthetic to dilate enough to again grasp and ligate the bleeding stump. The infiltrated skin is now removed and all bleeding stopped by ligation, if pressure from a pledget of gauze fails to control bleeding.

I make a point of using no adrenalin in the anesthetic solution as its hemostatic qualities may expire and afterbleeding occur. Bleeding is best controlled before anesthesia subsides. One side of the rectum can be treated in this way and one or two piles ligated and then the other side of the rectum treated if required at a later date, usually after about ten days.

We sometimes find that ligation of one prolapsed hemorrhoid is all a given case requires surgically and that other piles which are internal can be treated and cured by the injection method.

These injections are best made with a Brinkerhoff speculum. After introduction of the speculum rotation is made until the pile to be injected comes into view when the slide is partially removed allowing the pile to protrude into the lumen of the speculum. The speculum is held at this point by the nurse giving the operator the free use of both hands. The needle is connected with a Luer syringe containing the solution to be injected and making sure the needle is not in the lumen of a vein, the injection is made.

The quantity injected depends upon the solution used and the size of the pile to be fibrosed. Phenol, 5 to 10 per cent in olive oil, is used by some proctologists in from 7 to 15 minim doses for each pile.

Quinine and urea hydrochloride, 5 per cent solution, may be used in 3 to 7 minim injections in each pile.

I feel that the phenol injections are more satisfactory as they cause no discomfort while complaints of burning are registered in the use of the quinine and urea injections. The burning, however, soon passes off and very little soreness is experienced from either solution.

The injection method will eradicate internal piles and is done with perfect ease to the patient. If there is recurrence in the course of five or six years a second series of injections are not dreaded by the patient. The method, followed as described, will not cause sloughing of tissue and very little if any pain during the entire period of treatment. I have never had infection complicate either the ligation or injection treatment.

Ordinary antiseptic precautions are used to prevent infection, such as bathing the parts with bichloride or other antiseptics. Application of a drop of iodine or mercurochrome should be made at the point of needle puncture prior to starting the injection.

Some proctologists prefer the clamp and cautery which no doubt is a successful method in their hands. Others clamp the tumor tissue and sew over the stump which likely gives good results in their hands. Personally, I fear stitching of any tissue about the anus or rectum which may invite infection.

Subcutaneous clots are painful and can be excised following the injection of a few drops of local anesthetic. A fairly generous portion of skin is taken away with the clot leaving the marginal skin smooth. Very little discomfort is experienced at the time of excision or following and the case is soon healed.

Abscesses should be drained as soon as they are discovered. Here again local anesthesia is usually practical. Owing, however, to the pain and soreness already present a little nitrous oxide gas would be in order. Free drainage should be established by incision and the skin edges cut away to insure complete drainage and granulation from the bottom outward. Early drainage lessens the likelihood of fistula but if fistula occurs after drainage subsides treatment of the fistula will be necessary. This will likely require hospitalization and caudal, spinal or general anesthesia unless the tract is known to be superficial and not involving the muscles extensively. The extent of muscle involvement can usually be determined by gentle probing through the external opening with a finger in the rectum.

If found to be superficial the tissue external to the probe can be infiltrated and incised. The skin should be resected sufficiently to allow healing by granulation from the bottom of the tract and thus avoid a bridging across the skin. Dressing consists of a gauze pack to insure drainage and to prevent the skin from adhering and causing recurrence of the tract.

The treatments listed in this paper for the various conditions mentioned may be regarded as ambulatory. Following the treatments at my office I have the patient remain in bed in a rest room for from two to four hours. They are then taken home. Some require codein for pain; however, empirin or even acetylsalicylic acid will give comfort in most cases.

In fissure, hemorrhoids and superficial fistula, a bowel action should be induced in three days by a physic. If the action causes pain which continues, a hot sitz bath for fifteen or twenty minutes is very comforting as it cleanses the parts and relaxes muscular contraction.

Infection is not to be feared as the wounds are open and drainage is good. Ointment containing 2 per cent anesthesin applied to the parts acts adequately in relieving pain.

Mineral oils can be used for a period following the operation and then diminished after healing has progressed to the point where soreness has disappeared. Many business men are able to resume their work in two days following considerable surgery under local anesthesia.

As indicated before, my purpose is to bring aid through your efforts to those who cannot afford what would seem a huge expense in these times, to those that fear general anesthetics and to those that prefer to spend their time at home.

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PRODUCTION OF ESTRUS

J. B. Collip, Hans Selye, Evelyn M. Anderson and D. L. Thomson, Montreal (*Journal A. M. A.*, Nov. 11, 1933), state that the anterior pituitary-like gonad-stimulating substance of the human placenta and of human pregnancy blood and urine causes merely thecal luteinization when administered to hypophysectomized immature rats, to very young suckling rats or to guinea pigs. Hence, when in the normal rat it produces enlargement of follicles and formation of corpora lutea, it does so by virtue of the presence of a complementary substance produced by the pituitary of the test animal. The authors demonstrated the presence of this complementary substance in pituitary extracts and suggest that it may be identical with the substance which enhances the action of the anterior pituitary-like hormone on the ovaries of normal rats.

THE REFERRED SYMPTOMS OF ANORECTAL DISEASES

THEIR PROBABLE MODES OF PRODUCTION

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The most common reason for the examination of an offending organ is the presence of symptoms which under ordinary circumstances would lead us to suspect disease of that organ. Rectal examination would be done more often were the examiner mindful of the fact that rectal disease may cause referred symptoms which are more commonly indicative of disease in some other organ. The most common error on the part of the patient is the assumption that the absence of pain is a guarantee of the health of the part; hence he may often neglect to mention minor painless symptoms.

The proctologist often observes a great variety of symptoms which are apparently unrelated to anorectal disease. These symptoms are most commonly gastro-intestinal in type but may be respiratory, circulatory or nervous. The relationship of these symptoms will be more easily remembered if we explain their probable modes of production. Through the vegetative and cerebrospinal nervous systems the anorectal region is in communication with every organ in the body. It is through the vegetative nervous system that the obscure symptoms are reflexly produced.

ANATOMY OF THE VEGETATIVE SYSTEM

The vegetative nervous system is divided into two parts, the sympathetic, and the parasympathetic or craniosacral (fig. 1). The sympathetic system takes its origin from that portion of the spinal cord extending from the first thoracic to the third or fourth lumbar segments and consists of five parts:

(1) A chain of ganglia lying on each side of the vertebral column, there being as a rule one ganglion for each spinal nerve root. These ganglia are called lateral or vertebral ganglia.

(2) Numerous ganglia situated farther away from the spinal canal, termed collateral or prevertebral ganglia; and still others lying on or in the muscle of the viscera, as in the rectum, bladder and genital organs, termed terminal ganglia. The collateral ganglia include the cervical, the stellate, the semilunar, the superior mesenteric and the inferior mesenteric.

(3) Numerous plexus of fibers which supply the various tissues.

(4) White rami communicantes which are composed of efferent connector neurons between the lateral horns of the cord and the ganglia of the lateral chain.

(5) Gray rami communicantes which are composed of afferent neurons connecting the sympathetic and cerebrospinal systems.

The parasympathetic system consists of two

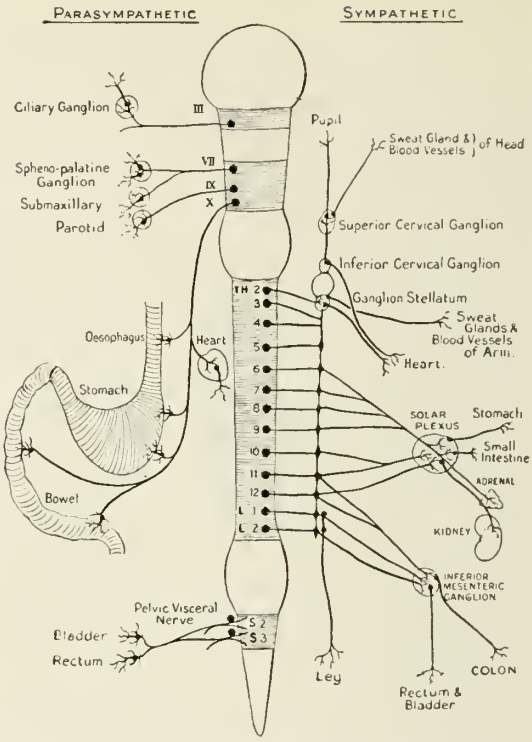

Fig. 1. Scheme of the general arrangement of the autonomic nervous system. Left side of figure shows the origin and distribution of the parasympathetic nervous system; right side shows the origin and distribution of the sympathetic nervous system. Reflexes from any organ supplied by either system may affect any other organ so supplied. (From "The Sympathetic Nervous System in Disease," W. Langdon Brown, London, Oxford University Press, 1920.)

parts, the craniobulbar and the sacral. The craniobulbar includes the third, seventh, ninth and tenth cranial nerves; of these we are more concerned with the vagus. The sacral nerve or so-called pelvic vagus has its origin at the level of the first and second lumbar vertebrae, passes out through the second and third sacral nerves and ends in ganglia lying on the surface of the rectum, bladder and other pelvic organs.

PHYSIOLOGY OF THE VEGETATIVE SYSTEM

Briefly stated, stimulation of the sympathetic causes contraction of the sphincters of the gastro-intestinal and urinary tracts and the ureter, and relaxation of all other smooth muscle of these tracts; acceleration of the heart and relaxation of the visceral blood vessels, and decreased secretion of all visceral glands. Stimulation of the parasympathetics produces contraction of the intestinal smooth muscle, relaxation of the sphincters and increased glandular secretion. There is no effect upon the vascular supply nor upon the ureter.

It is readily seen therefore that normal physiologic function of the gastro-intestinal tract is dependent upon the maintenance of balance between the sympathetic and parasympathetic impulses. Disturbance of this balance re-

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sults in a disturbed motility, secretion and blood supply.

APPLIED PHYSIOLOGY

Regarding the physiology of defecation, Keiller[1] says, "The autonomic center in the first and second lumbar segments, by way of the sympathetic ganglia and inferior mesenteric plexus, maintains the tone of the internal sphincter ani and allows the storage of feces in the lower colon. The parasympathetic center in the third and fourth sacral segments, by way of the internal pudendal nerves acting in response to pressure from within, relaxes the sphincters and thus initiates reflex peristalsis of the colon. This lower center is under the control of the will. There are cortical centers for control of the parasympathetic nuclei of the third and fourth sacral segments one of which contracts the sphincters and the other inhibits them."

We often see patients whose long-standing constipation has been cured by hemorrhoidectomy, excision of an ulcerated fissure or the healing of ulcers of the rectal pouch. Most every treatise on proctology calls attention to this fact. Beeler[2] in 1923 wrote, "The presence of piles and infected areas which destroy the essential reflex arm of the act of defecation is the real beginning of the great majority of cases of constipation, and not constipation the cause of piles as is so generally taught. The cure of piles and ulcers will bring about the reestablishment of sensory activity and restore bowel movement."

Pottenger[3] states, "Reflexes resulting from sensory afferent impulses from the internal viscera which flow centralward over the sympathetic neurons, express themselves through . . . vegetative neurons causing many visceral disturbances which we have as yet not fully learned to recognize. Reflexes resulting from sensory afferent impulses from the internal viscera which flow centralward over the parasympathetic neurons, express themselves . . . in a disturbance in function of other internal viscera. The important reflexes produced by stimuli from tissues supplied by the craniobulbar and sacral outflows, will be expressed largely in other internal viscera."

C. E. King[4] found that the insertion of an enema tip into a dog would stop the normal contractions of the duodenum and reduce its tonus. He also found that stretching the rectal wall was a greater factor than irritation of the mucosa. His concluding remarks are, "It is often taught that in many cases hemorrhoids develop as a result of constipation and it is a well-known fact that constipation is commonly associated with them. Our results would suggest that after the tumors are formed the constant irritation due to them may establish a vicious cycle."

Meltzer and Auer[5] found that central stimulation of one vagus produces reflexly through the other vagus a contraction of the entire esophagus. Lehman[6] in 1912 found that stimulation of the sciatic nerve would cause contraction of the colon and relaxation of the anal sphincter, a complex which will be referred to as the defecation reflex. This reflex travels afferently to the center in the medulla, then efferently over the visceral branches of the sacral nerves. Central vagus stimulation also produces the defecation reflex. On the other hand, central stimulation of the sacral or hypogastric nerves produces relaxation of the colon and contraction of the anal sphincter—an inhibition of the defecation reflex.

LaPlace[7] tells us that we have four sphincters; namely, the cardia, pyloris, ileocecal, and anal, and that spasm of any one of these may cause reflex spasm of the others.

SYMPATHETIC REFLEX EFFECTS

The following cases illustrate the possible reflex effect of hemorrhoids and rectal ulceration in causing continued and obstinate constipation of the atonic type due to reflex stimulation of the sympathetics.

REPORT OF CASES

Case 1. Mrs. R. L. M., a widow, aged 64, had complained for three days of severe pressure in the rectum with bearing-down and sacral pain on defecation. She had been constipated ever since the birth of her first child thirty-two years ago and had taken cathartics with increasing frequency ever since, and during the last year had taken a pill every night. She tired easily and had been very restless at night for the preceding year. There were no emotional disturbances. Examination revealed a most severe ulcerative proctitis and internal and external hemorrhoids. The rectum and sigmoid were relaxed per-

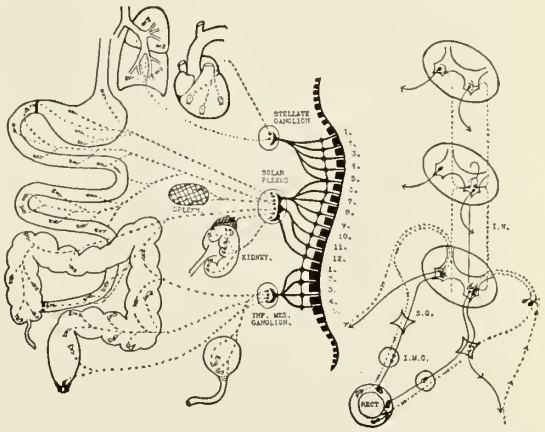

Fig. 2. Right side of figure shows the impulse from the rectum to the cord (dotted lines); its transmission up the cord through the intercalated neurons (I. N.). Left side shows the possible distribution of these reflexes. In the colon they produce atonic constipation. These are sympathetic in type. See cases 1 and 2. (Adapted from W. L. Brown and F. M. Pottenger.)

mitting easy passage of a sigmoidoscope. The proctitis was treated for one week and a hemorrhoidectomy was done. Since her recovery from operation the patient has not found it necessary to take any cathartics or mineral oil although she had done so for thirty-two years. Her endurance is normal and she sleeps well. Her diet has not been changed. Figure 2 illustrates the reflex arcs involved in the production of this patient's symptoms.

Case 2. Mrs. H. S., aged 25, complained of constipation of ten years' duration. During the last five years cathartics had been necessary to obtain bowel movement. In addition, enemas had been resorted to in the last year. Had been under treatment for two years for constipation. Roentgenologic examination revealed an atonic colon and rectum. During the preceding six months the patient had been emotionally disturbed and would weep on the slightest provocation. Examination revealed two shallow bleeding ulcers about one fourth of an inch in diameter at the level of the second valve on the right side of the rectum, an ulcer on the anterior rectal wall two inches above the sphincter where roughening could be felt with the finger, and external and internal hemorrhoids. The ulcers healed during the following two weeks and hemorrhoidectomy was done. Since recovery from operation she has been having two to three bowel movements daily without preliminary laxatives. She had been on a bland nonresidue diet for several weeks before I saw her and to date this diet has not been changed. The reflex arc is the same as in case 1.

PARASYMPATHETIC REFLEX EFFECTS

No discussion of the reflex symptoms of rectal disease would be complete without a consideration of the syndrome of colicky pain over some part of the colon associated with gaseous distention and severe constipation.

Pottenger explains that increased excitability of the intestinal vagus results in stimulation which affects the intestinal muscles irregularly thus producing increased tonus or spasm with constriction of the lumen at irregular intervals. Slowing the passage of the bowel content above the point of spasm allows time for the development of the digestive processes which produce gas. The colicky pains are due to the resultant distention of the gut which also irritates the sympathetics that transfer the afferent impulse to the spinal sensory nerves and produce hyperesthesia of the skin and body wall. These subjective symptoms may or may not be associated with the passage of variable amounts of mucus depending upon the presence or absence of secretory changes in the mucosa of the colon and rectum.

We are often agreeably surprised to find that the treatment or cure of an ulcerative proctitis, internal hemorrhoid or anal infection results in marked relief or cure of the distention, colicky pain and constipation which have been reflexly produced.

REPORT OF A CASE

Case 3. Mrs. C. C., aged 48, mother of three children, gave the following history: Since 1922 she had had periodic gastro-intestinal upsets characterized by severe colicky pain in the abdomen. In 1924 a large empyemic gallbladder was removed. For a few months thereafter she seemed somewhat improved. Mild indigestion with heart burn continued periodically until 1926 when she began to have attacks of gaseous distention accompanied by most severe colicky pain in the ascending colon and slightly to the left of the hepatic flexure. These pains were so excruciating at times that morphine was required for her relief. The attacks continued periodically up to the time I saw her. Emotional upsets had been frequent since 1922.

Sigmoidoscopic examination revealed a marked ulcerative proctitis the ulcers measuring from one half to two millimeters in diameter, for the most part discreet but in areas confluent. No hemorrhoids nor anal infection. Roentgenography showed that a duodenal ulcer present in 1928 had healed. There was an area of spasm three inches distal to the hepatic flexure and the descending colon at the juncture with the pelvic colon showed a spastic area about 6 inches long. Air inflation following the barium enema confirmed the previous findings.

The ulcerative proctitis was treated with local antiseptic instillations. Noticeable relief from symptoms was concomitant with the healing of the ulcerative proctitis. Subsequent sigmoidoscopic examinations show complete healing of the ulcerative proctitis and the colic, distention and constipation have disappeared. She is much less introspective and emotional. The reflex arcs involved in this case are illustrated in figure 3.

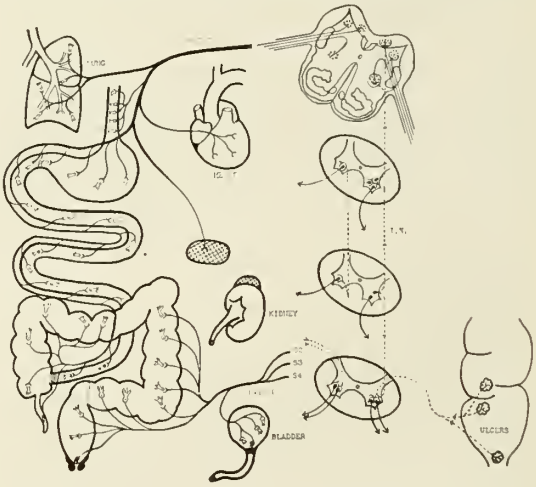

Fig. 3. Right side of figure shows the impulse from ulcer of the rectum passing to the cord and its transmission to the nuclei of the vagus through intercalated neurons (I. N.). Left side shows the possible distribution of these reflexes through the vagus and pelvic nerves. Reflexes of this type are parasympathetic and responsible for spastic constipation. See case 3. (Adapted from W. L. Brown and F. M. Pottenger.)

CEREBROSPINAL REFLEX EFFECTS

One of the most common cerebrospinal reflex symptoms of rectal disease is sciatic pain down one or both legs. Many patients will complain of this pain only when straining at stool; others are incapacitated by it.

REPORT OF CASES

Case 4. M. M., male, aged 28, complained of severe lancinating anorectal pain, severe throbbing in

the left ischiorectal fossa and severe aching pain along the course of the left sciatic nerve. When seated the patient could not lift the left foot from the floor because of pain. His past history is briefly as follows: (1) Hemorrhoids six years ago; (2) pain in the small of the back and down the left leg for the last five years; (3) posterior rectal abscess two years ago; (4) pulmonary tuberculosis one year ago; (5) recurrence of abscess three months ago; (6) had used a cane for the last two years.

On admission patient had a left ischiorectal abscess of nontuberculous origin. Abscess was drained and fistula resected. Pain in the back had disappeared upon return from the operating room. No pain in left leg since third postoperative day and since that day has not used the cane which was his constant aid for two years. Is still in the hands of an orthopedist who is correcting mild kyphosis of the thoracic spine. Has gained ten pounds in weight. Tuberculosis is quiescent and no further pain in the back or down the leg. The reflex arcs involved are pictured in figure 4.

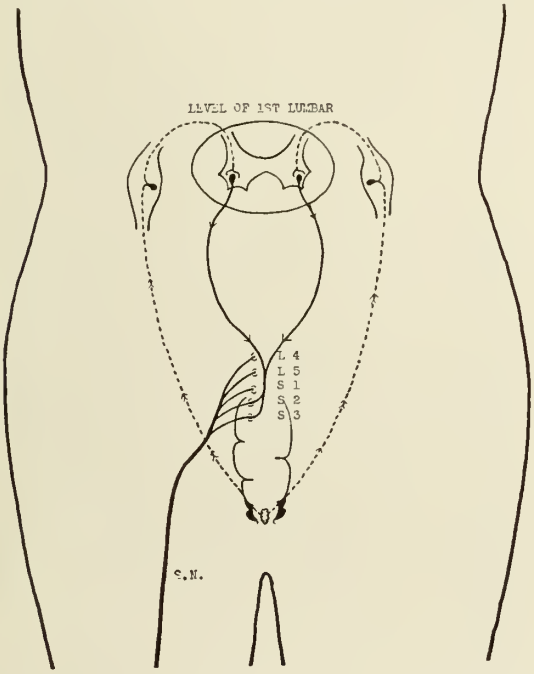

Fig. 4. Reflexes of the cerebrospinal type are simpler than those of the two preceding types. Impulse is shown from the ulcer through the cord and efferent over the sciatic nerve. See cases 4 and 5.

Case 5. A. P., male, aged 51, complained of pain down both legs when defecating; not bothered at other times unless he was very tired or had walked a great deal. Examination showed nothing abnormal except a marked cryptopapillitis. Ablation of the crypts and excision of the papillae has cured the bilateral sciatic pain. The reflex arc is the same as in the preceding case.

MIXED REFLEX EFFECTS

Of the various reflex disturbances due to anorectal disease probably none occurs more often than functional disturbance of the nervous system. Not infrequently we find the symptoms of the so-called neurasthenic relieved or cured by proper attention to anorectal disease. Concerning the mechanism involved in these reflexes, W. Langdon Brown[8] states: "Under normal conditions we are not clearly conscious of our internal organs, whereas the specific sensations aroused by the outer world on the afferent nerves of our skin and special sense organs are the source from which our consciousness is developed. But, although secretory processes and the motions of the gut do not usually pass the threshold of consciousness, our internal sensations send impressions to the brain which affect and color our individuality and we become aware of any great change in them. Hence, they may play a part in producing melancholia and hypochondriasis on the negative side, or a sense of well-being on the positive side. But the threshold of consciousness is not fixed or variable. It may alter considerably in individuals who are specially predisposed or trained. Thus the neurotic learns to speak of his internal sensations with an intimate knowledge to which the normal man is a stranger."

Among the symptoms complained of by the neurasthenic are palpitation of the heart, respiratory distress, choking sensations, digestive disorders of hyposecretion and hypersecretion, cardiospasm and pylorospasm. The most common example of the effect of irritation of the anorectum in this direction is that provided by dilatation of the anus in cases of respiratory failure. This example should not be lost sight of. Pottenger[9] says, "Cardiospasm, gastric hypersecretion and cardiac irregularity may all be caused by impulses traveling centralward over the pelvic (parasympathetic) nerve, being transmitted forward through the intercalary neurons to the floor of the fourth ventricle where they mediate with appropriate efferent fibres of the vagus." Hence we see how apparently minor and painless lesions of the anorectum, through their sympathetic effect on the gastro-intestinal and cardiorespiratory systems, may produce that train of symptoms of which the neurasthenic complains.

In May, 1932, I saw an elderly woman who was so nervous and distraught that she was contemplating suicide, and who as a last resort had sought the outpatient clinic for treatment of what she regarded a very minor anorectal complaint. She was found to have a cryptopapillitis. Ablation of the infected crypts and excision of the papillae under local anesthesia brought entire relief within the following two weeks.

Several weeks ago at the outpatient department of the Kansas City General Hospital we asked five consecutive female patients who had had hemorrhoidectomies whether they were any less nervous. The response from all five was they had obtained relief from nervousness, ir-

ritability and emotional upsets where these symptoms had been present preoperatively.

Martin[10] tells of three patients who "spent at least one day in bed following any manipulation of the rectum although none complained of pain at the time of examination." The symptoms were those of "shock, evidenced by depression, rapid pulse and inability to pull himself together."

The symptoms in these cases are undoubtedly due to a general upset of the vegetative nervous system caused by the afferent impulses from the diseased area.

SUMMARY AND CONCLUSIONS

The reflex symptoms resulting from disease of the anus and rectum may be quite logically divided into four types: (1) Sympathetic; (2) parasympathetic; (3) cerebrospinal, and (4) combinations of the three types.

Reflex sympathetic stimulation produces gastro-intestinal relaxation, sphincteric contraction and glandular hyposecretion. Reflex parasympathetic stimulation produces gastro-intestinal contraction, sphincteric relaxation and glandular hypersecretion.

Atonic constipation is the result of a preponderance of sympathetic stimuli whatever the cause; spastic constipation is the result of a preponderance of parasympathetic stimuli. Cerebrospinal reflex stimulation produces such symptoms as lumbar and sacral aching, sciatica, etc. Combinations of the three types may and often do produce the syndrome of neurasthenia.

The reflexes discussed and the case histories presented represent only a few of the large number of reflex symptoms which may be due to anorectal disease. No contention is made that all patients with these syndromes will be cured by proper anorectal surgery or treatment. Such results do occur often enough, however, for one to include thorough rectal examination as a routine part of the physical examination.

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DISCUSSION

Dr. Hudson Talbott, St. Louis: We have had such a wealth of scientific papers since this meeting opened that one could well afford to have come for one of them alone. This discussion on rectal disease well repays us for our time in coming. Not that there has been so much that is new, but the recalling of some of the well-known facts is certainly profitable.

Routine examination was mentioned. It is so often overlooked but it should always be done. It is very valuable in this field and these papers have properly emphasized its value.

Dr. Campbell spoke of infection about the sinuses and teeth, etc. We are fully aware that much infection is constantly passing down the alimentary tract. Perhaps we have not thought so much about its reaching the rectum. We might therefore learn something from that point and be a little more careful about cleansing our patient's mouths. It has been my custom for a long time, in preparing a patient for operative work, first to take care of the mouth. We know that a large percentage of people who come for general surgical procedure show infection about the mouth if we take the time to examine. I wonder if all of us, having heard Dr. W. D. Haggard over the radio in an S-T 37 program think he might tell us the remedy for control of infections in the alimentary tract.

Dr. Woolley spoke of general anesthesia and said "one might have to give a good general anesthetic." I am wondering if it is customary to use a general anesthetic for rectal operations. Surely caudal anesthesia is much better. He mentioned the clamp and cautery but uses ligatures. I much prefer the clamp and cautery. I have never had occasion to worry about hemorrhages and I think there is no need if one is careful in using the cautery. He also spoke of placing gauze in the rectum. I am just wondering whether he at any time after that particular operation had the experience of leaving gauze in the anus. Perhaps it is well that I have had that experience; since then no gauze goes in the anus of my patient. If you must have drainage a rubber dam is useful. None of the essayists spoke very pointedly about divulsion of the sphincter. That is an important factor. Divulsion of the sphincter will relieve much of the lower rectal trouble.

Dr. Paul V. Woolley, closing: I think Dr. Talbott must have misunderstood my idea about general anesthesia. The point is that the patient is better handled under local but, if you have after-bleeding, which may come with either local or general anesthesia, it would be difficult to use local again and then you may require a general anesthetic while you dilate the sphincter sufficiently to reach the point of bleeding.

Dr. Talbott referred to gauze in the rectum. I agree that it is very disagreeable but all I showed was that a thin layer of gauze over the area operated on will tend to stop oozing. It is not intended as a pack or anything like Pennington formerly used and it is not sufficiently large to keep the sphincter dilated.

LABRADOR SCHOOL TEACHES REGULAR HEALTH HABITS

Lockwood school near Sandwich Bay, Labrador, does not prepare its children to move away; it helps them to live easier and better lives in their native country, according to Elizabeth Criswell, who is in charge of this boarding school for isolated children. Her article, "School Health Work on the Labrador," appears in the December issue of *Hygeia*.

PERNICIOUS ANEMIA WITH NEUROLOGICAL SYMPTOMS AND A NORMAL BLOOD PICTURE

REPORT OF FOUR CASES

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It has been well recognized that neurological symptoms can develop late in the course of pernicious anemia but it has never been emphasized that these symptoms can precede any change in the blood picture. During the last few years we have seen four cases of this type in which the first symptoms were those of a severe degeneration of the posterior and lateral columns of the spinal cord.

These changes in pernicious anemia were first described by Lichtheim[1] in 1887, although two years earlier Lichtenstern[2] had observed them and believed they were allied with tabes. This was only eleven years after Addison's[3] classical description of the disease. At that time, Lichtheim believed that 15 to 20 per cent of pernicious anemia cases showed central nervous system involvement. Aherns[4] in 1932 made the statement that all cases of Addison's disease would probably show cord changes if properly examined.

Woltman[5] in 1918 clearly demonstrated pathological changes in the brain. He showed that there was a degeneration in the white matter although clinical evidence might be lacking. About 1895 Nonne[6] and Bastianelli[7] first reported cases in which neurological symptoms antedated any change in the blood picture. Woltman[5] in 1918 and Aherns[4] in 1932 each mentioned two cases of this type.

Pernicious anemia has been the subject of much study but until 1926 when Minot and Murphy[8] published their results on forced liver feedings, no specific therapy had been devised. Since then it has been shown that the anemia of Addison's disease can be controlled by adequate glandular therapy. However, this treatment has not proved so efficacious in cases of advanced neurological involvement.

The general symptoms of pernicious anemia are so well known that it is unnecessary to take the time to discuss them in this paper. The neurological symptoms result from a widespread degeneration of the myelin sheaths, which usually begins in the spinal cord but can independently attack any other part of the nervous system.

Read before the Jackson County Medical Society, March 21, 1933.

For our convenience we will consider the fiber tracts of the spinal cord to be divided into four parts. First, the posterior columns, which carry the deep muscle and bone sensations; second, the posterolateral columns, which are the motor tracts; third, the anterolateral columns, which carry the afferent cerebellar tracts and the superficial sensations, those of pain, heat and cold, and fourth, the anterior columns which, for the purpose of this paper, may be considered nonfunctioning.

The toxin of pernicious anemia has a special affinity for the posterior and the posterolateral columns and, while the degeneration can occur in any other part of the cord it seldom does. Therefore, as a result motor sensations do not reach the anterior horn cells and the deep sensations are not transmitted to the brain.

So we have two types of neurological symptoms, the motor and the sensory. The motor symptoms consist of increased tendon reflexes and decreased superficial reflexes (abdominal and cremasteric), abnormal reflexes (Babinski, Hoffman, clonus, etc.), spasticity and paralysis. The sensory symptoms consist of a numbness and tingling of fingers and toes, positive Rhomberg, ataxia, loss or diminution of vibratory, position, passive motion and deep pressure and pain sensations.

The earliest of these symptoms to develop is a numbness and tingling of fingers and toes and an increase in tendon reflexes. Subsequently, one will usually find gait disturbances as a result of the weakness, spasticity and ataxia, and examination will reveal the presence of the other symptoms. In the terminal stages, psychic symptoms are almost invariably seen. Usually, there are loss of orientation and memory, euphoria and delusions of persecution. One of our cases showed a well marked aphasia, which is very unusual. Bladder and bowel disturbances are seen as a rule.

One may find involvement of the peripheral nerves which changes the picture completely, so that the patient shows the symptoms of lower motor neuron disease, accompanying the upper, and a diminution or loss of all forms of sensation. The nerve trunks are extremely tender. All or any of these symptoms can be found during the course of the disease, but the neurological manifestations can be the first symptoms of Addison's disease. The following four cases clearly demonstrate this fact.

REPORT OF CASES

Case 1. H. D., male, aged 52, seen first by us in August, 1929. At that time he gave a chief complaint of weakness and stiffness of the legs, first noticed in 1927. Since then and up to the time of the examination there was a steady progression of the symptoms,

with a history of disturbance of bowel and bladder control. He had not noticed any soreness of the tongue nor indigestion.

Examination revealed a well developed, well preserved man, with some yellowish discoloration of the skin. The gait was somewhat labored and spastic in type. Positive Rhomberg sign. Upper extremities showed no weakness, the reflexes were exaggerated and sensory examination showed no disturbance of any senses; abdominal reflexes absent.

The lower extremities were moderately spastic and there was very definite weakness of both legs. Reflexes were exaggerated and there was a suggestive Babinski sign; superficial sensations intact, but there was diminution of the sensation of passive motion, position and vibration. The balance of the physical examination revealed no abnormalities.

The red blood count was 4,200,000, hemoglobin 80 per cent, white cells 5700. Gastric analysis showed no free HCl and five combined. The spinal fluid analysis showed two cells per c.c., negative Wassermann, globulin and colloidal gold; Queckenstadt was normal.

A diagnosis of posterolateral sclerosis of the anemic type was made and liver therapy prescribed. However, due to circumstances, he could not obtain sufficient extract of fresh liver and six months later when he returned the neurological symptoms had progressed to the point where he could scarcely walk and he was very weak. The discoloration of his skin had increased and he showed a marked glossitis. A marked change had occurred in the blood picture. The red cell count had fallen to 2,430,000, the hemoglobin was 60 per cent and abnormal cells were found. At that time sufficient liver extract was procured for him and there was a steady improvement in the blood picture. However, the neurological symptoms have advanced until he is now bedridden and has lost control of his bladder, but the blood picture shows a normal count—hemoglobin percentage, color index and differential.

Case 2. J. H., male, aged 54. This man came to us in October, 1931. The chief complaint was weakness. The onset was in March, 1931, when he noticed difficulty in walking and numbness of both hands. His symptoms increased in severity until in October he had great difficulty in walking. No history of indigestion or discoloration of the skin. He gave a history of transient attacks of glossitis.

Examination revealed no disturbance of the cranial nerves. All four extremities were weak and spastic; the tendon reflexes were exaggerated; abdominal and cremasteric were absent; Hoffman and Babinski were positive and ankle and patellar clonus were present; the gait was spastic and labored. Tactile and two-point discriminations, steriognosis, vibration and sense of position were impaired; the Rhomberg was positive.

Laboratory findings revealed 4,515,000 red blood cells; 75 per cent hemoglobin and no pathological cells. Gastric analysis, no free HCl and six combined. Spinal fluid revealed three cells per c.c. All other tests were negative.

Under treatment with hog stomach extract the patient made a definite improvement until, at the present time, he can walk without any support. Repeated blood counts revealed no evidence of a primary anemia.

Case 3. E. F., female, aged 53, first seen in Februray, 1932. At that time she complained of numbness and tingling of fingers and toes, difficulty of walking and a sore tongue. The sensory symptoms had been first noticed in October of 1930 and the ataxia one year later. The symptoms became slowly but surely worse until her demise on Christmas day, 1932.

Examination revealed a well developed and preserved adult female apparently in excellent health. Her gait was markedly ataxic and spastic. There was a positive Rhomberg. There was an exaggeration of reflexes in all extremities; abdominal reflexes were present. Superficial sensations were intact but there was a diminution of the sensations of passive motion, position and vibration. Except for a twenty year old abdominal scar and a raw tongue the balance of the examination was negative. Past and family history revealed only the pelvic operation for a salpingectomy.

The red blood count was 4,150,000 with 90 per cent hemoglobin. The white count was 7600 with 70 per cent polymorphonuclears. Gastric analysis showed no free HCl, using histamine as a stimulant. The serology, blood and spinal fluid were negative, as was the gold sol curve; urine negative, Queckenstadt negative.

A diagnosis of posterolateral sclerosis of the anemic type was made and the patient was immediately placed on a liver diet and 10 c.c. of 1/10 (normal) HCl, t.i.d.

There was a subsequent check-up on the spinal fluid and three gastric analyses with the same result as at first. Blood counts were done biweekly and never did the blood picture show any abnormal cells until ten days before death. The red count was always above 4,000,000 and the hemoglobin above 80 per cent. All the recognized forms of liver therapy were used with little difference in effect.

The patient remained ambulatory in spite of the ataxia until the fifteenth of November. The sore tongue disappeared shortly after treatment was instituted as did the sensory symptoms in the fingers. The abdominal reflexes disappeared in July; otherwise, the progress was a gradual failing.

Quite suddenly, in the middle of November, the patient became bedridden; aphasia of the word-forming type became apparent. By the fifteenth of December the patient had only periods of lucidity, the appetite was gone and there was bladder retention and neuritis of the right hip. Coma occurred on the twenty-third and death Christmas morning.

Case 4. C. A., male, aged 39. He first applied for treatment in May, 1930. At that time the chief complaint was numbness and tingling of fingers and toes, weakness of the lower extremities and indigestion. Onset was a month before and progression of symptoms had been slow. There was no history of soreness of the tongue or of discoloration of the skin.

Examination revealed no disturbance of gait but the Rhomberg was moderately positive. There were no abnormalities of the cranial nerves; reflexes were exaggerated in all four extremities; abdominal and cremasteric reflexes were sluggish; there were no abnormal reflexes; vital sensations were intact and while there was apparently some impairment of the deep sensibilities it was not marked.

Laboratory examination showed 4,300,000 red blood cells, hemoglobin 80 per cent, and no disturbance of the differential picture. No free HCl on gastric analysis; total was ten. Spinal fluid examination showed no abnormalities.

He was given large doses of hog stomach extract for a short time and his symptoms began to improve

at once. Four weeks later he was practically symptom free and has remained so ever since under treatment of small doses of the above named medication.

SUMMARY

While we realize that the diagnosis in some of these cases may be questionable, their uniformity, their close approach to the classical syndrome and the absence of any other tenable diagnosis cause us to feel these cases are definitely in the pernicious anemia group.

The clinical pathology was uniform and all cases showed a complete absence of free HCl in the stomach. The spinal fluids, including colloidal gold curves, were normal and Queckenstadt tests in every case showed unblocked canals. The serological tests were negative and the blood pictures were within normal limits when the neurological symptoms were severe enough for the patients to seek medical advice. Subsequently, two of the cases developed the blood picture of pernicious anemia. Three of the cases showed stomatitis at some stage but only one demonstrated any discoloration of the skin.

All the cases showed the symptoms of a pathological involvement of the posterior columns of the spinal cord as evidenced by the paresthesia, positive Rhomberg, ataxia and disturbance of vibratory sensations, with retention of the vital sensations of pain, heat and cold, which dissociation of sensations is diagnostic of the above anatomical localization.

The lateral column involvement was shown by the increased tone and tendon reflexes, abnormal reflexes and the loss of cutaneous reflexes. The one case which failed to show marked symptomatology was probably examined too early in the course of the disease.

Thus, the neurological symptoms in these cases are those of a subacute combined sclerosis of the pernicious anemia type, and these cases are either pernicious anemia or some disease which will produce a similar destruction of the cord.

DIFFERENTIAL DIAGNOSIS

The two conditions which are most difficult to rule out are tabes and multiple sclerosis. However, in our cases, tabes could not be considered because of the involvement of the upper motor neuron and the absence of pain. The serological examination in both blood and spinal fluid was consistently negative in all cases.

The elimination of multiple sclerosis is more difficult, but the presence of stomatitis and achylia, the absence of a colloidal gold luetic curve, and no symptoms of cerebellar lesions definitely rule out this diffuse degenerative disease.

Cord tumors, vascular disease and myelitis cannot be considered because of the neurological symptoms.

Our physical examinations did not show any other condition which could cause a degeneration of this type, and two of our cases later developed confirmatory blood pictures.

The results of our treatment were variable. Case 1 did not receive adequate treatment until the blood picture developed, but even after adequate liver therapy the neurological symptoms advanced.

Case 2 showed improvement in the neurological symptoms after treatment was instituted.

Case 3 died after a year of intensive treatment although marked anemia never developed.

Case 4 became symptom free under treatment.

CONCLUSIONS

The neurological symptoms of pernicious anemia can develop independently of any changes in the blood picture.

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PHYLOGENETIC STUDY OF INSANITY IN ITS UNDERLYING MORPHOLOGY

Trigant Burrow's, New York (Journal A. M. A., March 4, 1933), laboratory study of man and his reaction as a total process gives indication that the false ideas, the delusions and phobias, the mood-alternations of elation and depression, the emotional conflicts, the repressions and overaccentuations characteristic of mental disease, all are but reflections of an impairment that is deeper seated within the organism. This impairment consists in tensions, alterations and disturbances that affect definite body processes. In a word, the conflict or disparity present in mental disorders consists in a discrepancy between those feelings and sensations which belong to the organism as a whole and those sensations which belong to that circumscribed segment of the organism located in the cephalic region with its secondarily acquired ideas and images. As this conflict consists in a disparity between two clearly defined body zones, it is a physiologic disparity. Such a condition is perceptible and remediable only through recourse to physiologic methods of repair and not through a program which attempts to exchange ideas for ideas and images for images.

EPITHELIAL TUMORS OF THE SKIN

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Of all dermatological disease entities tumors of the skin are the most satisfactory to deal with. Neoplastic processes are always intensely interesting; they are seen in their earliest forms on the skin, where they are plainly visible, circumscribed and completely palpable and lend themselves most often to complete cure. Excluding cases of melanoma, any person who dies of primary skin cancer has been treated incorrectly, either through his neglecting himself, or through incorrect treatment when he has come for help. Nowadays, the neglect of the patient to come for help is the commonest error and must be considered practically inexcusable in times when education of the public is so strenuously carried out. We shall limit this discussion to primary epithelial growths of the skin. Primary sarcoma of the skin is decidedly uncommon in practice.

The surface of the body is covered by a continuous layer of epithelial cells of ectodermal origin, the basal cell layer of the epidermis. These cells produce the several layers of the epidermis by mitotic division. The epidermis is avascular and its outermost cells undergo metabolic changes, presumably from lack of nutrient, which result in their becoming inspissated and horny. The central cells of squamous cell nests in a carcinoma are similarly distant from nutrient supply and similarly become cornified, thus forming horny pearls.

The embryologically primary cell layer of the skin has remarkable properties of differentiation and function. Not only can these cells produce the stratum corneum, which resists bacterial invasion as well as minor physical irritation, and drying of the body, but also they evolve such diverse structures as hairs, sweat glands, fat glands, axillary, perianal and smegma-forming glands, the breasts, fingernails and toenails, the crystalline lens of the eye, the transparent surface of the cornea and the teeth. The remarkable power of differentiation of the ectodermal layer is even more notable in other animals than the human where fur, feathers, scales of fish, horses' hoofs, tortoise shell, elephant tusks, rhinoceros horns and plates of whale bone can be enumerated. Thickening of the epidermis produces callosities and corns in response to friction. Certain cells of the ectodermal layer normally elaborate melanin pigment. They produce it excessively in response to light, heat, or other irritation and abnormally in pigmented nevi and melanoma.

The types of epithelial skin tumors are best divided according to the differentiation from which they are derived or to which they approximate. Some resemble normal accessory structures, some are quite anomalous, others, the melanomata, may offer little inkling of their origin. The sources of derivation are (1) surface epiderm, (2) accessory apparatus (hair follicle, fat gland, sweat gland, nail bed) and (3) anomalous proliferation. The last group occasions confusion, especially among theorists, because one observer interprets a resemblance to some accessory apparatus anlage, where another observer doesn't.

The surface epiderm can proliferate, pile up, extend peripherally and burrow superficially, forming circumscribed patches of flat, brownish, greasy scaling, oozing lesions, called Bowen's disease. If the cells of the proliferating underneath portion include polynuclear epithelial cells and atypical mitoses, it is pathologically true Bowen's disease. If the proliferations form tiny lumps in the derma, and stain deep blue and the cells are uniform without atypical ones, the condition is superficial basal cell epitheliomatosis. Either process is capable of spreading, going deeper and eventually ulcerating.

The hair follicles and fat glands which arise by budding out from the hair follicle, can produce tumors. These are generally of a basal cell type. Seldom does one see the formation of sebum in the cells of a tumor, though small hemispherical excrescences that are not enlarging and have been present a long time are not infrequently composed of large, tightly packed sebaceous glands. These are called sebaceous adenomas. They are often distributed in a characteristic manner over the malar prominences, bridge of the nose and the sternum, a disturbance sometimes familial and occurring in persons below par cerebrally. Hair follicle tumors may be solid, alveolar or of net-like strands; or sometimes in thick bands which may give a doughnut appearance in sections. These in the gross generally resemble a rounded button of wax within the skin, raised more or less sharply, neatly circumscribed, smooth or slightly nodular in outline, glistening and firm, eventually sloughing in the center from lack of nutrition to the central cells of the lump. They become crateriform and spread peripherally, undergoing central ulceration, crusting and sloughing, progressing deeper in typical rodent ulcer manner.

Many basal cell tumors answer the above description. The classic form is the raised waxy

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nodule which enlarges centrifugally and ulcerates in the center. Some enlarge by sending out strands of cells as slender extensions in the dermal tissue spaces; the ends of these form bulbous proliferations which are seen as nodules slightly beyond the margin of the primary lesion. Some tumors are flat and superficial, arcuate in outline with nodular periphery. These may slough the shallow neoplasm within the progressing borders and produce marginated, atrophic patches; they are oftenest seen on the forehead and temple resembling morphea, or scleroderma. Some are progressive, deep and ulcerating; and another type, very characteristic in appearance, is bulging, brownish, not invasive until late, soft and lipomatous to the touch. The so-called endothelioma capitis is a late-ulcerating infiltrative variety which involves extensive portions of the scalp and produces large, firm globoid lumps and nodules.

At times, serial sections of the small unulcerated basal cell tumors fail to show continuity with the overlying epidermis. The original connection may have broken or atrophied; or the downgrowth may have developed, to use an unbiological analogy, in the manner of a drop of thick syrup which drips from the mouth of a pitcher. In these congenital displacements proliferation begins for no very apparent reason, generally after a long period of quiescence. The original lesion, as one learns from questioning many intelligent patients with small rodent ulcer, is a minute, waxy, firm papule which he has many times nicked in shaving; or a tiny pimple which he believed to be a blackhead and squeezed and got nothing out. Such pimples, if removed and examined before they begin to grow, show a few nodular masses of basal type cells, or a couple of hollow spherical masses of hair shaft-like cells, or a network-like strand of blue staining cells resembling embroidery within a stroma of dense fibrous tissue.

Epithelioma adenoides cysticum is a specific type, in which coiled cylinders of epithelial cells are found in a small fibrous tumor. These rarely progress or ulcerate.

The earliest lesions may resemble nevi, but the word nevus is best reserved for a particular group of tumors. It has been thought that nevus cells, the vesicular pale-staining masses beneath the epidermal surface of ordinary moles, are derived from that surface by a peculiar process. Epithelial papillae enlarge and the central cells become loosened from one another. The ring-like border surrounding the loosened cells breaks apart letting them migrate a bit deeper en masse, and they become separated completely from evident connection with the surface layer from which they were derived. The overlying epiderm restitutes to normal and no hint of the origin of the underlying nevus cells is evident. This interpretation has been supplanted by the observations of Masson* that nevi are nerve termination tumors. The cells are closely related to Langerhans' cells and are found in the epidermis normally. Their proliferation in melanoma may look as if epithelium were proliferating. Perhaps they are epithelial, but they are not of the same nature as ordinary epidermis cells, the proliferation of which forms hair, nail, squamous carcinoma and cutaneous horns. Nevi—and I limit the term to the nerve end tumors, excluding angiomas, acanthomas and other of heterogenous microanatomy—may be pigmented or unpigmented. The blastomas that develop from them may be pigmented or unpigmented and the cell forms of the malignant melanoma are extremely varied.

Sweat gland tumors are rare. Cystic enlargement may occur, forming a tiny transparent vesicle called hydrocystoma. These are analogous to sebaceous cysts derived from fat glands. Basal cell types of lesions are seldom of sweat gland origin but they do occur. A minute firm nodular tumor consisting of erratically growing coil gland epithelium in a fibrous tissue stroma, is known as syringocystadenoma. Several cases have been described of a quite rare malignant sweat gland tumor, properly called syringocystadenocarcinoma.

Implantation cysts develop from normal epidermis traumatically displaced beneath the surface. Dermoid cysts are perhaps embryonic displacements. They are firm, round and nodular; their walls contain accessory skin structures, such as hair follicles and sebaceous glands. In occasional instances they become malignant.

Epidermal tumors from the nail bed are commonly melanomata. Why neoplastic proliferation from this epithelium takes the form of melanotic whitlow one cannot say. It does.

A very rare epithelioma is the calcifying type. It is of local extension only.†

We have noted briefly the types of epithelial skin tumors, giving our idea of their histogenesis.

All that separates a basal cell from a squamous cell is a matter of differentiation. What chemical change in the protoplasmic make-up is required one cannot say. Squamous cells stain more with acid dyes. They never change into basal cells but in tumors may become highly anaplastic. Basal cell tumors are quite radiosensitive; yet if they are insufficiently irradiated their cells metamorphose into squamous cells,

*French Archives of Pathologic Anatomy, 1926.
†Chin Kuang-yu, Amer. J. Path., July, 1933.

which are less radiosensitive. A basal cell tumor incompletely removed is likely to grow back squamous in part. Basal cell lesions that are extensive and of long duration generally are squamous in part. This is particularly true of those that involve periosteum or perichrondrium. Lesions of the back of the ear are thus often incorrectly diagnosed clinically. Recent literature discusses these forms under the names of transitional, or basosquamous types. Single tumors frequently contain several types of cells; and in this connection Whitman's theory of the origin of tumors in somatic mutation deserves mention.

Three common types of brown, scaly, benign epithelial lesions are grouped under the term "seborrheic keratoses."

Seborrheic keratoses of the verrucoid type are wart-like lesions, found often about the eyelids, cheeks, lips and the neck. Structurally, they show thickened epithelium which dips into the corium and tends gradually to proliferate there in rounded nubbins that grow deeper; the thickened epithelium gives rise superficially to translucent horn which is piled highest in the center of the lesion and may reach remarkable degrees of development. Cutaneous horns originate from these.

Seborrheic keratoses of the nevoid type are soft, brownish lesions, often having a slight pedicle on which are cauliflower-like papillae with greasy scales. In sections, the epithelium is thick, with wide and enlarged papillae that resemble basal cell tumor material. These I have seen become proliferative, though it is rare. Sometimes nests of nevus cells lie beneath such abnormal epidermis, simulating these "nevoid" acanthomas.

Seborrheic keratoses of the keratoid type are at their earliest stage not to be differentiated from freckles. They begin to scale, may appear to disappear, reappear, scale again, become thicker and eventually form persistent warty tumors of skin thickness. They may ultimately ulcerate in the middle as well as spread centrifugally. They are always squamous in type when they proliferate into carcinomata.

Squamous carcinomata are characterized by the formation of horny pearls. They have several manners of origin; from seborrheic keratoses of the verrucoid type, from seborrheic keratoses of the keratoid type or senile keratoses, from leukoplakias, and from metaplastic basal cell lesions; and they arise *de novo*, in chronically irritated lesions in the mouth from rough teeth, etc., in the edges of old sinuses, on the bases of chronic inflammations such as gummata, particularly of the tongue, irradiation scars and burns, skin tuberculosis, lupus erythematosus, even exceptionally on keloids. Chimney sweeps, mule spinners, tar workers, betel nut chewers, and Kashmirs who carry fire boxes on their abdomens, are regularly listed as those who develop squamous cancers peculiar to their habits. The earliest keratosis on a roentgen ray scar cannot be differentiated from a senile keratosis; and, like these, are also the early lesions of xeroderma pigmentosum, a curious sensitivity to light seen occasionally in young children, which result in squamous cancer on exposed parts at an early age.

Microscopically, squamous cell lesions vary. Some are quite typical, showing no infiltration by narrow strands of undifferentiated cells but infiltrating only by knob-shaped, obovate masses with horny pearls inside. Others are rapidly infiltrating types, with highly undifferentiated spindle-shaped cells that do not form large enough lumps to develop horn. They have been graded I, II, III, and IV by Broders of the Mayo Clinic, I being benign and IV malignant, a method of labeling useful in discussion but perfectly artificial insofar as the understanding of the morbid activity is concerned.

A squamous cancer often travels rapidly to regional lymphatics, and it is astonishing how small a primary lesion, if it is of an infiltrative nature, may already have regional metastases. On the other hand, massive lesions may still be limited to the site of origin; those developing on senile keratoses on the backs of the hands are fair examples. These are always squamous, I believe, though in older literature they have sometimes been called basal.

A squamous cancer even if it has metastases in regional lymph glands is a continuous thing, in the sense that one part is joined to another by a rhizoid strand of cancer cells in the tissue channels. The analogy of a bunch of grapes is quite appropriate. This fact is of primary importance in dealing with late cases of carcinoma, quite a few of which are curable; I am at present going through our records of cases of cancer of the lip, operated on by Dr. Elmer Twyman, of Kansas City; and there are a number of instances in which lip cancers with proved lymph gland metastases have had five year cures by preliminary irradiation and block dissection with the cautery. Twyman's technic is notable in that he takes the region of the lymph channels connecting the primary with the glands, as well as the glands themselves. We believe it unreasonable to remove clinically silent gland areas simply because a lesion in that zone proves squamous and dangerous looking on microscopic examination. Palpation of the cancer in the patient is the best criterion of its extent;

microscopic examination of a part of the tumor removed from the patient tells little of specific clinical significance.

Location has a good deal of correlation with the type of lesion found, but is in itself of no reliance whatever. Only the microscope tells what types of cells are present. Scalp and forehead lesions are usually basal cell. Those on the temple are often squamous. Back of the ear they are generally squamous, and in front of the ear generally basal; and the inner canthus and lower lid generally squamous. The nasolabial fold lesions are generally basal, the tip of the nose has squamous lesions often though not as a rule. Lesions on the lip mucosa are always squamous, as well as those on the tongue and mucosa of the cheeks; but hard palate and uvula lesions are generally basal cell in type. The chin and neck tumors are generally basal; there are a number of squamous mixed with the many basal cell tumors on the cheeks. On the trunk superficial epitheliomatosis is more common than elsewhere; both basal and squamous lesions occur but are not very common. The lesion on the backs of the hands are squamous. Twyman calls attention to the fact that these are very frequently attached to the sheaths of superficial veins. Tumors under the nails and those on the soles of the feet are generally melanotic. Those about the genital and anal regions are almost invariably squamous.

TREATMENT

The treatment is the vital matter which we have been leading up to. Obviously it depends upon the eradication of tumor cells; and while many methods are in vogue I shall simply give our practice, pausing only to condemn escharotic paste method; this is as far behind the times when compared with methods of accurate destruction as the old smooth bore flint lock was as compared with the modern Mauser equipped with telescope sights.

We give our tumors a preliminary dose of radium, calculated to stop mitoses and to swell the endothelial cells of the lymph channels. Shortly after, using novocain anesthesia under —not through—the tumor, we excise it with a margin of normal by means of a pointed electric cautery at dull red heat. Those which in size are beyond a dermatologist's surgical prerogatives, receive the same management in principle, though the endothermy knife often replaces the actual cautery.

Only a limited number of carefully chosen cases receives radium alone, though the results are particularly satisfying in these. If a tumor fails to respond to radiation promptly and convincingly, or if it mainly goes away and then seems stubborn, it is at once excised as described. Considerable familiarity with the minute anatomy of these tumors comes through sectioning scores of them after they have been burned out. This enables one to remove them from the patient with the smallest scar consistent with absolute certainty that all cancer cells are gone. The scar of the granulated burn is decidedly favorable in appearance when compared with the scar from irradiation treatment.

In melanomata we consider the only hope to be the eradication of the original lesion, assuming there be no metastases already demonstrable. We consider correct a necrotizing dose of irradiation sufficient to slough even the apparently normal margin, or a cautery removal which must be wide. Removal must include the deep layer of superficial fascia which carries the deep lymphatic channels. Many, showing obvious microscopic evidence of malignancy, are so cured.

801 Lathrop Building.

SURGICAL TREATMENT OF BLEEDING DUODENAL ULCER

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There is perhaps in all cases of duodenal ulcer a variable degree of bleeding. Many ulcers bleed rather profusely at times or have periods of protracted oozing and one is unaware of its existence. Likewise many patients note periodic passage of dark stools but attach no significance to it as the condition clears up in a short time. Often conditions indicating past evidence of bleeding are not brought out in obtaining the history from the patient. It is therefore difficult to state the frequency with which bleeding is associated with duodenal ulcer. Balfour's estimation is perhaps as accurate as can be determined and corresponds with similar reports from other writers. He places the frequency at about 20 per cent. Regardless of the frequency, hemorrhage from duodenal ulcer is one of the outstanding and serious complications and occurs about as often as perforation or obstruction from cicatricial tissue.

The source of bleeding is either from an artery which has been eroded by the invading ulcer or from the oozing of granulation tissue in the ulcer crater.

The bleeding may be profuse and produce outstanding symptoms of extensive concealed

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hemorrhage or it may be a protracted oozing over a long period resulting in high grade secondary anemia. Profuse bleeding rarely requires surgery at the time of hemorrhage and response to medical measures is usually prompt. Surgery is not well tolerated in a patient greatly debilitated from sudden hemorrhage and the chance of recovery is more favorable under conservative measures. Yet with persistent or frequent recurrence of hemorrhage, surgery is indicated after adequate blood transfusion. Excision of the ulcer in such instance is the operation of choice. Ulcers which do not respond to medical treatment should be operated on even in the absence of any alarming complication.

The accurate localization of gastro-intestinal bleeding is sometimes difficult. Many ulcers that bleed, like many ulcers that perforate, present a very indefinite ulcer history. Often only a vague history of indigestion is obtained with nothing definitely suggestive of duodenal ulcer. Also it must be remembered that roentgenological examination of ulcers of this type does not always demonstrate deformity. Small ulcers may bleed early and even extensive duodenitis may produce active bleeding without symptoms or roentgenological findings. Bleeding may occur from other sites in the small intestinal tract. Negative findings of positive intestinal bleeding necessitate careful consideration of bleeding from liver and splenic origin. However, protracted bleeding high up in the intestinal tract even in the absence of clinical symptoms and positive roentgenological findings is most likely due to a lesion in the duodenum or stomach and exploratory laparotomy may be advisable.

The etiology of peptic ulcer is a much debated question and its relation to foci of infection has attracted many investigators. The work of Hayden has been very convincing that ulcer in man bears a definite relation to focal infection. His experimental reproduction of duodenal ulcer in animals from streptococci derived from foci of infection in individuals suffering from ulcer has been experimentally conclusive of the relation of infection to ulcer formation. However in man the removal of definite foci of infection has often failed to influence the ulcer in the slightest; then again marked improvement has followed. Whether improvement is due to the removal of a direct feeding source for the ulcer or to the improvement of the general health is debatable. At least because of the experimental relationship, all foci of infection in teeth, tonsils, sinuses and elsewhere should be eliminated. Certainly recurrence is less likely if sources of infection are removed.

Surgery being decided upon, the type of operation is an important matter and should be well considered. It is obvious that no one method of operative procedure is applicable to all cases of duodenal ulcer. The advisability of an indirect versus a direct attack upon the ulcer depends upon the location of the lesion, the mobility of the duodenum, the technical difficulties encountered and the adaptability of the surgeon to the various procedures. Ulcers anteriorly located and freely accessible should be excised. Bleeding ulcers on the posterior wall may be destroyed by cautery through a transduodenal approach. The partial excision of the pylorus with a plastic reconstruction is of great value and gives excellent results. The indirect operation of gastrojejunostomy has stood the test of time and has the lowest mortality rate.

Gastro-enterostomy stands foremost in the surgical procedures for this condition. It has the advantage of being safer, is more easily performed, is applicable to all cases and gives a high degree of satisfaction by usually producing healing of the lesion in the duodenum. Satisfactory results are obtained in 80 to 85 per cent of cases and better results can hardly be expected from other procedures. Some objections are apparent.

It is well known that gastro-enterostomy is not as effective in the presence of a patent pylorus as when the pylorus is obstructed; also that healing of the duodenal lesion may not occur or that reactivation may take place; in addition there is the ever present possibility of the devolopment of ulcer at the site of anastomosis. This latter complication is not common, occurring in less than 5 per cent of the cases. Disconnection of the anastomosis is not difficult and if the ulcer in the duodenum is found not healed it should be excised making sure that the patency of the pylorus is adequate for future functioning.

Direct attack upon the ulcer by excision and suture of the defect would seem to be the most rational procedure. Excision plus gastro-enterostomy meet the requirements of removal of the ulcerated process and promote rest to the duodenum by drainage and continued alkalization of the stomach contents. However, excision is not always feasible. The location of the lesion, obesity of the patient and fixation of the duodenum may make such a procedure too hazardous. Ulcers located on the anterior wall can be easily excised and at the same time adequate inspection of the posterior wall of the duodenum is afforded. Posterior wall ulcers not easily accessible for excision can be handled by cautery and suture. Gastro-enterostomy

combined with excision is an excellent procedure.

Excision with partial pylorectomy and a plastic reconstruction after the method of Finney or Judd is an ideal procedure. Here the entire posterior wall of the duodenum can be inspected and the plastic operation can be extended to include lesions in that location. This has the advantage of continuing the gastric flow through the normal channel and eliminates jejunal ulcers and abolishes the effect of pylorospasm. Pylorospasm being a potent factor in distress from ulcer and being the important causative factor in hypermotility, hyperacidity and in hyperaccumulation of gastric contents, the partial removal of the pylorus would be highly desirable.

Partial duodenal and gastric resection offers an extensive procedure for radical cure. It removes the ulcer bearing area of the duodenum and materially changes the physiological and chemical factors responsible for ulcer symptoms. It eliminates pylorospasm and greatly alters the chemical condition of the gastric contents. The mode of anastomosis is preferably that of stomach to duodenum. This necessitates ample mobility of the duodenum without tension on the suture line. It maintains the normal route for the gastric contents and eliminates jejunal ulcer. The Billroth I operation or some modification fulfills these objectives. Otherwise when direct stomach to duodenum anastomosis is not feasible some form of the Billroth II operation is indicated. The best of these is the retrocolic anastomosis of the jejunum to stomach, after the method of Polya, or modified by closing either a portion of the stomach near the lesser curvature or the greater curvature as the choice may be. This modification affords a smaller anastomosis with the jejunum and prevents too rapid emptying of the stomach. An extensive resection of this type is a big operation attended by high mortality and is rarely indicated as a primary procedure for a bleeding duodenal ulcer. There is also the possibility that an ulcer may develop at the site of anastomosis. In that event the anastomosis must be taken down and a further resection and anastomosis made after the ulcerated area in the jejunum has been excised and jejunal continuity restored by an end to end or end to side anastomosis. The multiplicity of operations employed indicates that no one procedure is adequate in all duodenal lesions. Each case requires special study and the method of attack often cannot be determined until the lesion is carefully inspected and examined by direct palpation.

1016 Professional Building.

FILAMENT-NONFILAMENT COUNT IN CHRONIC ARTHRITIS

In their studies of the chronic rheumatic diseases Otto Steinbrocker and Edward F. Hartung, New York (Journal A. M. A., March 4, 1933), resorted to various aids to facilitate the diagnosis and differentiation of chronic rheumatoid arthritis and osteoarthritis. Because infection is considered the etiologic factor in some forms of these diseases, they have for some time sought diagnostic assistance from the study of the blood picture. They observed that the filament-nonfilament count is a useful routine diagnostic aid in chronic arthritis. Filament-nonfilament counts in fifty patients with rheumatoid or chronic infectious arthritis were abnormally elevated in 100 per cent of the patients. The filament-nonfilament count was normal in twenty-six patients, or 52 per cent, of a group of osteo-arthritic patients, while in the rest of this group the count was elevated. The average nonfilament count was much higher (31.5 per cent) in patients with rheumatoid arthritis than in osteo-arthritic patients with an abnormal count (22.3 per cent). The filament-nonfilament count is helpful in differentiating rheumatoid arthritis from osteo-arthritis only when within normal limits. A normal count indicates that chronic rheumatoid infection is not present. An elevated count may indicate the presence of rheumatoid arthritis, mixed rheumatoid and osteo-arthritis, or osteo-arthritis with active focal infection.

DEXTROSE THERAPY IN DISEASES OF THE LIVER

T. L. Althausen, San Francisco (Journal A. M. A., April 15, 1933), points out that the presence of a certain amount of glycogen is essential for the proper functioning of the liver. In diseases of the liver, insufficient gluconeogenesis causes "internal" carbohydrate starvation, which results in a reduction of hepatic glycogen, probably largely through depletion of that part of it which serves as a storage form of carbohydrate. Both in experimental animals with hepatic damage and in patients with diseases of the liver, it is possible by administration of suitable amounts of dextrose to relieve the internal shortage of carbohydrate and, as a result of this, to bring about glycogen storage. Oral administration of dextrose is the method of choice unless contraindications are present. Administration of dextrose is indicated when one desires: (1) to reduce the working load of the liver; (2) to correct metabolic derangements due to hepatic insufficiency; (3) to aid detoxication, especially if the toxins are of unknown origin and cannot be otherwise eliminated; (4) to favor rapid regeneration of hepatic parenchyma, and (5) to shorten prolonged coagulation time in jaundice. One or more of these indications are present in all primary diseases of the liver and also in cases of secondary functional hepatic insufficiency. The human body at rest requires 30 calories or 8 Gm. of dextrose per kilogram of weight.

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SUCCESSFUL REMOVAL OF AN ENTIRE LUNG FOR CARCINOMA

Carcinoma of the lung, not long ago considered a great rarity, has become a problem of major importance, constituting according to recent statistics from 5 to 10 per cent of all cancers. Treatment, even the most vigorous application of radium and roentgen rays, has been unsuccessful in preventing a fatal outcome. Surgical removal has been seldom attempted because of the great technical difficulties. New hope is offered in the recent report by Dr. E. A. Graham and Dr. J. J. Singer, St. Louis. In a man of 48 suffering from a squamous cell carcinoma of the bronchus, Dr. Graham[1] was able to remove in a one stage operation the entire left lung and its adjacent lymph nodes. The eradication of tumor tissue was apparently complete and the patient made a most satisfactory recovery. It is believed that this is the first time an entire lung has been successfully removed for a carcinoma.

This brilliant achievement with its great possibilities of therapeutic benefit, is but one of many important contributions to the surgery of the thorax by Dr. Graham, Dr. Singer and their associates at Washington University. For the last ten years they have been engaged in a series of researches which have covered many and various phases of pulmonary disease. These have included an improved management of empyema, the development of cautery pneumonectomy in the treatment of chronic abscess of the lung, as well as a large number of diagnostic procedures such as a simple method for the introduction of iodized oil and improved apparatus for pneumothorax and for postural drainage.

To their clinic students have come from all over the world and from them thoracic surgeons in many distant cities have received inspiration and guidance. Dr. Graham's work both in the development of cholecystography and in the treatment of pulmonary disease has received world-wide recognition and many honors have been bestowed upon him. To us it should be a cause for congratulation that in Missouri there is such preeminent leadership in the new and promising fields of surgery.

1. Graham, E. A.: Successful Removal of an Entire Lung for Carcinoma of the Bronchus, J. A. M. A. **101**:1371 (Oct. 28) 1933.

NEW ATTACK ON CANCER QUACKS

With the appointment of the advisory committee of the State Medical Association to cooperate with the State Board of Health plans are being developed for a systematic attack upon cancer quacks and fake cancer cures in Missouri. The recent court decision assessing damages against two St. Louis physicians (not members of our Association) who treated a patient for so-called cancer by the application of a "paste" has given a new impetus to the movement to rid Missouri of cancer quacks. The case was tried before a jury and the verdict was unanimous. Several of our members testified that the "paste" was a futile effort to cure real cancer but might heal certain kinds of noncancerous tumors and sores. The tragic effects of this sort of treatment of true cancer by delaying scientific treatment beyond the time when such treatment would cure the disease was made plain to both the court and the jury.

The press quickly perceived what a frightful waste of life was wrought by these fakers and the newspapers cooperated by warning the people against such fakers.

The plan of the campaign involves the cooperative activities of the State Board of Health, the advisory committee of the State Medical Association, the local committee of the American Society for the Control of Cancer and the press to educate the people on the early symptoms of cancer and the necessity for consulting only reputable physicians who have the indorsement of the State Medical Association. In no other way can the people be safeguarded against the cancer quack. As a preliminary movement the American Society for the Control of Cancer will conduct a survey of the state which will include not only collection of statistics on cancer fakers and their unhappy victims but also make a thorough observation on all phases of the cancer problem in Missouri. The results of this survey will enable the State Board of Health and cooperative agencies to establish a far-reaching campaign of public instruction that should and undoubtedly will cause cancer sufferers and those who think they have cancer to pause before allowing a self-advertised "cancer specialist" whether a physician or a layman to treat him and lead him to

seek the advice of a reputable physician. Any person who might be in doubt about the standing of a physician or other individual who treats cancer can obtain positive information on this point by consulting the county medical society, the State Board of Health or the Missouri State Medical Association. A reputable physician will welcome such investigation. The other kind will dread it and ought to be labeled.

FEDERAL EMERGENCY RELIEF

Answers to the questionnaire on the Federal plan to pay physicians for service rendered indigent sick persons on relief roles in their homes showed a general desire among the component societies to take advantage of the proposition. The method of procedure was published in our December issue, page 507. Members are urged to read these rules and regulations carefully so they will be familiar with the plan when it is submitted to the county society for adoption.

For the guidance of societies desiring to enter into an agreement with the Federal Government the following brief statement is submitted:

The officers of the society or a committee appointed by the president should arrange for a conference with the chairman of the county committee on relief and reemployment. The name of this chairman has been given to the secretary of each society. At this conference a program of cooperation should be arranged and after it has been approved by the chairman of the county committee it should be submitted to the county society for adoption. There are several fundamental principles that must be observed, viz:

(1) Only persons who are on a relief role (local, county or state) are eligible for this medical service in their homes. This includes treatment of ambulatory cases in your office.

(2) A person who is employed and therefore not on a relief role may be placed on the relief role for medical service only if it is found that his wages are insufficient to pay for medical service as well as all his other expenses.

(3) The traditional family-physician relationship must be maintained in so far as possible and the service rendered must be of the same type as would be rendered to a private patient who pays your fees.

(4) The fee schedule should be an appreciable reduction from the prevailing minimum charges for similar services.

There are quite a number of items that have a bearing upon the program to be adopted. All these items are plainly stated and there should be no difficulty in arriving at an agreement.

When the program is adopted by the society every member would be eligible for call to serve under these regulations and at the stipulated fee. If a member does not wish to enter into the agreement he cannot of course be compelled to do so but his name must then be omitted from the list of physicians which the society would furnish to the county committee.

ST. LOUIS SESSION OF THE KANSAS CITY SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

On December 7 and 8 about forty members of the Kansas City Society of Ophthalmology and Otolaryngology met in St. Louis as guests of St. Louis University Medical School, Washington University Medical School and the St. Louis Ophthalmology Club. The first day was spent at St. Louis University where a very instructive program of operations, lectures and demonstrations was given. At lunch Dr. W. H. Luedde, St. Louis, acted as toastmaster and several good speeches were heard. Father Schwitalla, dean of the St. Louis University Medical School, gave some interesting statistics in relation to medical training. The evening of the seventh was spent at a banquet at the University Club. Dr. B. Y. Alvis, St. Louis, presided and the Kansas City members furnished the social entertainment. Dr. Kermit Christensen, St. Louis, read a fine paper with lantern slides on the sphenopalitine ganglion and Dr. John W. Hardesty, St. Louis, read a paper on glaucoma in which he has done much original work. On December 8 Washington University Medical School was the host and the faculty held most instructive operative and diagnostic clinics and described some of the research problems upon which the faculty is working.

To say the meeting was a success is not doing the St. Louis group enough honor. The St. Louis members were most perfect hosts and all the out-of-town men returned home with old friendships strengthened and new ones made.

All were impressed with the wonderful clinical opportunities that St. Louis offers; colleagues in other specialties would advantage themselves by seizing the opportunities offered by these institutions.

Such an out-of-town meeting is not new to the Kansas City Society of Ophthalmology and Otolaryngology. Once every year the society has a meeting away from home; such meetings have been held in St. Joseph, Oklahoma City and Rochester, Minnesota. The members find

these meetings a wonderful incentive not only in the study of scientific problems but also in the social sphere, for, as one chums with colleagues on the train to and from the meeting a better mutual understanding is developed. Furthermore, many pleasant hours are spent together, new friends are made and lastly, the "daily grind" is forgotten thus putting one in better physical and mental mood on returning home.

STATE DEPARTMENT OF HEALTH

Beginning with this issue the State Department of Health of Missouri will have a page set aside for its exclusive use for conveying information to the practicing physicians on matters that affect the relationship of the practitioner to the Department of Health. The first article appears on page 40 and discusses the new method of reporting contagious diseases. Other articles will appear from time to time.

NEWS NOTES

Dr. O. Jason Dixon, Kansas City, was the guest of the Tulsa (Oklahoma) Nose and Throat Club, November 13. He spoke on "Use of Viable Muscle as a New Method of Vascular Repair."

Dr. Logan Clendening, Kansas City, was the guest of the Academy of Medicine of Cleveland (Ohio) at their annual meeting December 15 and delivered an address on "The Lure of Old Medical Books."

Dr. Max A. Goldstein, St. Louis, was the guest of the faculty and students of the University of Iowa School of Medicine, November 17, and delivered an address on "Recent Achievements in Science and Pedagogy for the Deaf."

Dr. Richard L. Sutton, Jr., Kansas City, was the guest of the Crawford County (Kansas) Medical Society at Pittsburg, December 1. He presented a lantern slide demonstration on "The Early Diagnosis and Treatment of Cancer of the Skin."

Dr. Julius Frischer, Kansas City, presented a paper before the Southwest Branch of the American Urologic Association at Houston, Texas, November 24. He spoke on "Local Infiltration Anesthesia in Electrosurgery of the Prostate."

Dr. David P. Barr, St, Louis, and Dr. Frank M. Pottenger, Monrovia, California, delivered addresses before the St. Louis Trudeau Club, December 7. Dr. Barr spoke on "Uses and Abuses of Oxygen and Carbon Dioxide Therapy" and Dr. Pottenger spoke on "Clinical Aspects of Visceral Neurology of Lung and Pleura."

Drs. Ralph A. Kinsella and August A. Werner and Major J. E. Phillips, St. Louis, were the guests of the Franklin County (Illinois) Medical Society at Benton, November 23. Dr. Kinsella spoke on "Cardiovascular Diseases"; Dr. Werner spoke on "Sex Hormones," and Major Phillips talked on "The Civilian Conservation Corps."

Dr. Hermon S. Major, Kansas City, Dr. August A. Werner and Dr. L. G. McCutchen, St. Louis, were the guests of the visiting and consulting physicians of the Fulton State Hospital at Fulton, Missouri, December 6. Dr. Major gave a "Motion Picture Demonstration of Mental Cases"; Dr. Werner spoke on "Sex Hormones," and Dr. McCutchen gave a motion picture demonstration on "Fractures."

Dr. Richard L. Sutton, Kansas City, was the guest of the Postgraduate Medical Assembly of South Texas at Houston, November 24. Dr. Sutton delivered talks on "The Diagnosis and Treatment of Cancer of the Skin," and "Dermatology as Related to General Medicine." At the afternoon session he conducted a clinic on some of the commoner diseases of the skin. On the following day Dr. Sutton was the guest of the Texas Dermatological Association at Houston.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories
- Abbott's Haliver Oil, Plain Capsules
- Phenobarbital Sodium—Abbott

Lederle Laboratories, Inc.
- Gas Gangrene Antitoxin Polyvalent—Not Refined
- Antipneumococcic Serum—Refined and Concentrated. Type II

Mead Johnson & Co.
- Mead's Viosterol in Halibut Liver Oil 250-D (in Capsules)

Sharp & Dohme, Inc.
- Arizona Ash Pollen Extract—Mulford;

Barnyard Grass Pollen Extract—Mulford; Birch Pollen Extract—Mulford; Chrysanthemum Pollen Extract—Mulford; Hemp Pollen Extract—Mulford; Mesquite Pollen Extract—Mulford; Papaw Pollen Extract—Mulford; Primrose Pollen Extract—Mulford; Arizona Walnut Pollen Extract—Mulford; Sycamore Pollen Extract—Mulford; Saw Grass Pollen Extract—Mulford; Sagewort Pollen Extract—Mulford; Prairie Sage Pollen Extract—Mulford; Pasture Sage Pollen Extract—Mulford

E. R. Squibb & Sons
Concentrated Antipneumococcus Serum Types I and II
Diluted Diphtheria Toxoid for Reaction Test, 1 c.c. Ampule

Winthrop Chemical Co., Inc.
Luminal Sodium Solution in Ethylene Glycol

The January clinic of the Kansas City Southwest Clinical Society will be held Tuesday, January 9, at Menorah Hospital. Dr. Robert Keritschoner, Kansas City, chairman, has outlined a program for the entire morning consisting of presentations on various general medical subjects by members of the staff. A demonstration of cases from the cancer clinic of Menorah Hospital will be included. The program is designed to be of interest to the general practitioner as well as the specialist.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. Lee D. Cady and Dr. C. M. Stroud, St. Louis, were the guests of the Five County Medical Society at Malden, December 6. Dr. Cady spoke on "The Emotions and Their Physical Symptoms" and Dr. Stroud spoke on "Allergy and the General Practitioner; With Consideration of Emotional Aspect."

The Nodaway County Medical Society had as its guests at Maryville, December 6, Dr. Emsley T. Johnson and Dr. C. Edgar Virden, Kansas City, who presented a symposium on "Diseases of the Gallbladder."

Dr. M. Pinson Neal and Dr. Dudley A. Robnett, Columbia, were the guests of the Chariton County Medical Society at Salisbury, December 8. Dr. Neal spoke on "Anemias, Their Types and Distinctive Features," and Dr. Robnett spoke on "Carcinoma of the Cervix Uteri." On December 18, Dr. Neal was the guest of the Vernon-Cedar County Medical Society at Nevada and spoke on "Pneumonia."

Dr. Jabez N. Jackson and Dr. Francis E. McCallum, Kansas City, were the guests of the Polk-Dallas-Hickory County Medical Society at Fair Play December 5 and delivered addresses.

On December 12 Dr. Edgar F. Schmitz, St. Louis, was the guest of the Randolph-Monroe County Medical Society at Moberly and spoke on "Obstetrics."

Dr. E. Lee Shrader and Dr. Lee D. Cady, St. Louis, were scheduled to address the Lincoln County Medical Society December 20 at Elsberry. Bad weather encountered while en route and bad roads prevented their arrival in time to deliver their addresses.

OBITUARY

ROBERT BURNS, M.D.

Dr. Robert Burns, surgeon, was born in St. Louis, August 17, 1879. He received his preliminary education in the St. Louis public schools and Smith Academy and then entered the medical department of Washington University from which college he was graduated in 1901. He was associated in the practice of surgery for over twenty years with Dr. Herman Tuholske—the then professor of surgery at Washington University. He was a member of the surgical department of Washington University Hospital and Clinic from 1901 to 1911 and associate surgeon at Bethesda Hospital. In addition to being a member of the St. Louis Medical and St. Louis Surgical Society, he was elected a fellow of the American College of Surgeons, receiving his degree at Boston in 1915.

He was commissioned a Captain in the U. S. Army in August, 1917, and ordered to active duty at Fort Snelling, Minnesota, where he served as chief of surgical service, president of discharge board and president of the consulting board. After four months in this service he was promoted to the grade of Major. In August, 1918, he was ordered to France as chief operating surgeon with U. S. Army Base Hospital No. 78. While in France he commanded Base Hospital No. 78 (2000 beds) at Toul. While at Toul he became a Lieutenant Colonel and a member of the general courts martial of which he was for a time acting president.

After returning from overseas, he resumed his practice, consisting chiefly of surgical work. Always a conscientious and conservative surgeon he was both admired and loved by his clientele which included some of St. Louis' most prominent citizens. Ever firm in his convictions and steadfast in his loyalty, he was seldom known to display great emotion. Soft spoken and courteous, firm yet gentle, he was esteemed by his associates and a small circle of intimates. His chief recreations were golf and bridge.

Several years ago his health began to fail, due chiefly to a thyroid condition. Characteristically of the man, he complained little but carried on under terrific mental and physical strain until the end which came suddenly on July 17, 1933.

May it be a solace to those who were near and dear to him to know that his fellow members of the

St. Louis Medical Society are deeply cognizant of the loss which they, the community and the profession has sustained. There is ever a great need for such men as Robert Burns.—L. T. in the *Bulletin* of the St. Louis Medical Society.

OLA PUTNAM, M.D.

Dr. Ola Putnam, Marceline, died of coronary thrombosis in his hospital, December 4. He was born in Bucklin fifty years ago.

He attended the schools at Bucklin and then entered the Denver University from which he graduated with the highest honors. This achieved, he entered Rush Medical College and was graduated in 1901. He then commenced active practice with his father, Dr. B. B. Putnam, in Marceline and Bucklin.

The recent and much lamented death of our beloved Dr. Putnam impels me to pause and recount some of his medical activities and personal characteristics. He was a staunch believer in and a conscientious disciple of that high order of medical ethics founded on the Hippocratic Oath and adopted by the American Medical Association. He was an ardent investigator and worshiper at the shrine of truth. He was what he was, there was no sham. It was through merit and not by patting people on the back that he attained the high position which he occupied in the medical profession.

In 1922 he built the B. B. Putnam Memorial Hospital in Marceline where he performed over four thousand major surgical operations. Not a mother has been lost in childbirth at the institution although some required cesarean section. In the depths of his studies he would seem oblivious to self-interests addressing himself wholly to suffering humanity.

> The boasts of heraldry, the pomp of power,
> And all that beauty, all that wealth ere gave,
> Await alike, the inevitable hour;
> The paths of glory lead but to the grave.

The striking sentiments are beautifully phrased but let us cling to the Longfellow diction "That the grave is not the goal" and the great good works initiated by his father will go on and on through his son, Dr. Benjamin Putnam.

A. W. Zillman, M.D.

CHARLES ADAMS ROTHWELL, M.D.

Dr. Charles Adams Rothwell, who passed away at his home in Mexico, September 30, was a physician to the manor born. His father, Dr. T. P. Rothwell, practiced medicine in Missouri for forty years; his grandfathers on both sides, Dr. John Rothwell and Dr. Renfro; his great-grandfather and his great-great-grandfather, Dr. Whipple were also physicians. Dr. Rothwell himself began the practice of medicine in Mexico in 1891, continuing there in active service until a few years ago when ill health forced his retirement. At his death he left the bulk of his considerable estate to the Audrain County Hospital, "in memory of my father, Dr. Thomas P. Rothwell." Thus Dr. C. A. Rothwell "carried on" in this great family service to humanity for the fifth unbroken generation and though he left no son to follow in his footsteps his generous bequest to the Audrain County Hospital will continue the work through generations yet unborn.

Dr. Rothwell was born in Mexico, April 12, 1866, the only son of Dr. T. P. Rothwell and Mrs. Carrie Adams Rothwell. He was educated at William Jewell College being graduated with the class of 1887. He took his medical work at the Missouri Medical College, St. Louis, and the New York Post-Graduate Medical School and Hospital. He was married to Miss Jessie Wells, Mexico, in 1899. She died in 1901. Dr. Rothwell had been health commissioner of Mexico for ten years, coroner of Audrain County, secretary and president of the Audrain County Medical Society, a member of Linton District Medical Society, Missouri State Medical Association and the American Medical Association.

The Rothwell family has been a distinguished one in other fields as well as in medicine. Preachers, teachers and statesmen have added honor to the name. One uncle, William R. Rothwell, was professor of theology and moral philosophy at William Jewell College for many years; another uncle, Hon. Gideon F. Rothwell, was a member of the United States Congress.

Dr. Rothwell is survived by a number of cousins, including Dr. R. T. Gibbs, Mrs. J. A. Glandon, Mrs. H. L. Miller, Mrs. W. W. Pollock, Mrs. Ella Smith and Miss Ida Lake, Mexico; F. L. Gibbs, Columbia; J. R. Reed, Butte, Montana; Mrs. H. E. Watts and Mrs. Forrest G. Ferris, St. Louis; G. F. Rothwell, Moberly; Mrs. A. B. Shattuck, Hollywood, California. C. R. Adams, Mexico, is an uncle and Hampton and Fount Rothwell, of St. Louis, are second cousins.

Funeral services were held from the home at Mexico. Dr. Robin Gould and Rev. Blake Smith, of the Mexico Methodist and Baptist churches, conducted the service. Interment was in the family lot in the Elmwood Cemetery beside his parents and his wife. The pallbearers were Dr. H. C. Brashear, W. W. Pollock, Charles Criswell, Fred A. Morris, C. M. Clay, George Clanton and Lewis McIntyre.

During recent years, while Dr. Rothwell was in failing health, he had been attended faithfully by his nurse, Miss Ollie Blackburn, who made these years restful and quiet. Friends among his patients continued to come to him at his home and he ministered to them despite his own ill health.

Five uninterrupted generations of unstinted service in the amelioration and cure of human suffering and now a splendid benefaction to continue the work for years and years to come! What a worthy family and what a worthy son of it has now gone home!

And I heard a voice from heaven, saying unto me, "Write: blessed are the dead which die in the Lord from henceforth; Yea, saith the Spirit, that they may rest from their labors; and their works do follow them."

H. C. Brashear, M.D.

ARTHUR J. SIMPSON, M.D.

Dr. Arthur J. Simpson, Chillicothe, a graduate of the University Medical College of Kansas City, 1895, died at his residence October 31. He was 59 years old. He had been ill with a cold for several days and even after contracting bronchopneumonia continued waiting on patients in his office. The pneumonia seemed to have been successfully combated after a few days in bed when he suddenly developed signs of a failing heart and he died following an angina pectoris attack.

Dr. Simpson was born in Springhill, July 18, 1874. He was educated in the public schools of Chillicothe and later decided to follow in the footsteps of his father, Dr. Wm. Simpson, a pioneer physician of North Missouri. After graduation from the University Medical College he located in Chillicothe

where he practiced medicine and surgery until his death. He had completed postgraduate studies in clinics in Chicago, New York and in European centers.

Dr. Simpson was looked upon by the medical profession as one of Missouri's pioneer practitioners of roentgen ray therapy and as a prominent surgeon of great ability. He was always a friend and constant help to a young physician, having aided several of them to establish their practices. He was a philanthropic man giving much of his time and money to deserving persons and charities.

In 1928 Dr. and Mrs. Simpson deeded to the City of Chillicothe a beautiful wooded tract of land north of the city known as Simpson Park to be used by the citizens of Chillicothe and the surrounding country as a municipal park and playground. It is regarded as one of the finest municipal playgrounds in Missouri. A year ago an additional tract of five acres adjoining their former gift was donated to enlarge this beautiful park.

Dr. Simpson was a member of the Caldwell-Livingston County Medical Society. The medical profession and the people of our State have indeed lost a friend by Dr. Simpson's untimely death.

He is survived by his widow, Mrs. Alta T. Simpson.

Donald M. Dowell, M.D.

B. L. SULZBACHER, M.D.

Dr. Sulzbacher had a professional background of unquestioned merit. His father was a native of Germany. After his immigration to the United States he attained distinction as a highly respected Federal jurist and represented the United States in several foreign countries. The doctor was born in Las Vegas, New Mexico, in 1874 and obtained his preliminary education in both public and Catholic schools. He was graduated from the University Medical College of Kansas City in 1895. He later did extensive postgraduate work in Berlin, Vienna and Göttingen.

Dr. Sulzbacher was an original member of the staff of the Alfred Benjamin Clinic where he consistently contributed his services. For many years he was one of the loyal staff members of Research Hospital. He was also on the staff of Menorah Hospital and a member of the executive committee.

He spoke several languages and was an ardent patron of both music and art. His services were always available for the very poor and the very sick.

Dr. Sulzbacher had a personality that was dramatic and dynamic. His clientele was perhaps the largest and most loyal enjoyed by any Kansas City physician. He was always a welcome and interesting guest at any social event, and was enthusiastic about outdoor sports, particularly golf, which was his hobby.

The Temple on Linwood Boulevard where the last eulogistic prayer was offered accommodates approximately two thousand people. Many of his former patients and professional friends who attempted to pay him their respects at this final rite found standing room only, or had to remain outside the Temple.

The finest compliment that can be paid a citizen in any large city is that he be given editorial notice in a metropolitan newspaper. The *Kansas City Times* said editorially:

> Kansas City has lost a notable citizen and a highly accomplished physician and surgeon in the death of Dr. B. L. Sulzbacher. It is ironical that Dr. Sulzbacher, whose knowledge and skill in many instances had saved human lives against desperate odds, should have died of injuries beyond surgical aid. The accident of which he was a victim was a shock to the medical profession, to a large number of friends and to the patients and families to whom he had ministered through the years of active practice. Mingled hope and anxiety attended the hours when his life was in the balance.
>
> Dr. Sulzbacher had an alert, inquiring mind, a quick appreciation of merit and an eager, affectionate interest in those he classed as friends. It was good fortune to know him, a privilege to meet him, a satisfaction to discourse with him.

The tragic termination of the life of Dr. Sulzbacher, which was "in line of duty," is not easily harmonized with reason. The community, the profession and the sick have lost a generous benefactor.—M. A. H. in the Jackson County Medical *Journal.*

GOVERNMENT EXPOSES ACTIVITIES OF QUACKS

Quacks, under diligent prosecution by the government food and drug agents have found it necessary to change their ways or to discontinue business at the old stand. For various reasons it is impossible to control fully the activities of quacks at the present time.

For one thing, the law does not have any authority to control traffic in medicines, and other pharmaceutic products that do not cross state borders. Many of the quacks operate locally. Then, too, a certain product, seized under a particular name and removed from the market, may appear in a few weeks under an entirely different name.

Some quacks, while labeling their goods in accordance with the terms of the Food and Drugs Act, advertise their wares resoundingly and untruthfully. The national pure food and drug law does not have authority to censor or to regulate outside advertising; its jurisdiction is limited to statements made on the labels or in circulars accompanying the goods in interstate commerce. Dr. Solon R. Barber exposes the audacity of these modern quacks, many of whom have been brought to terms by federal prosecution, in an article appearing in the March issue of *Hygeia.*

THE HAZARDS OF INTRAPERITONEAL INJECTIONS

Samuel F. Ravenel, Greensboro, N. C. (Journal A. M. A., Feb. 18, 1933), reports five cases illustrating some of the dangers encountered in using the intraperitoneal injections. They occurred in the comparatively limited experience of one man during the course of nine years. Abdominal distention is an absolute contraindication to intraperitoneal injection. The introduction of unmatched or incompatible blood into the peritoneal cavity is dangerous and unwarranted. Cross agglutination before each such transfusion is necessary, irrespective of whether or not the same donor previously has been used with success. In premature or young infants, intraperitoneal injection in the midline below the umbilicus may produce serious hemorrhage by wounding the "obliterated" hypogastric artery. Intraperitoneal injection, while affording the most satisfactory method of administering fluids parenterally to infants, is not entirely devoid of danger. In one of the reported cases perforation of the intestine occurred during intraperitoneal injection of saline solution. In two instances, incompatible blood administered intraperitoneally produced violent local and general reactions. In two cases, serious hemorrhage resulted from puncture of the "obliterated" hypogastric artery during the course of intraperitoneal injections in young infants.

State Department of Health of Missouri

JEFFERSON CITY

Emmett P. North, M.D., St. Louis, President
E. T. McGaugh, M.D., Jefferson City, Secretary
P. T. Bohan, M. D., Kansas City
W. T. Elam, M.D., St. Joseph
E. S. Smith, M.D., Kirksville
W. A. Clark, M.D., Jefferson City
T. S. Bourke, M.D., Kansas City

A NEW METHOD OF REPORTING CONTAGIOUS DISEASES TO THE STATE BOARD OF HEALTH OF MISSOURI

E. T. McGAUGH, M.D., Secretary

JEFFERSON CITY, MO.

The Missouri State Health Department is glad to have this opportunity of discussing morbidity reporting. Statistical information is often dry and uninteresting and as a consequence most of us are apt to shy away from anything that smacks of statistics. Yet if we consider it as the bookkeeping of life and death and compare it to the bookkeeping department of a bank, we can immediately see how important it becomes. Perhaps it might not be amiss to discuss the responsibilities and duties of the physician toward morbidity reporting and the gathering of accurate statistical information concerning disease.

First, it is the physician's responsibility to the public to isolate any suspicious case of disease until a definite diagnosis is made. If the diagnosis is positive for communicable disease, it is then his responsibility to place a physician's quarantine on the home of the patient, pending formal quarantine by the local health authorities. Second, it is his duty to report immediately the presence of a communicable disease to the local health officer within whose jurisdiction it occurs. If he reports verbally or by phone, which he should do if possible, he should later fill out the regulation reportable disease card and mail it to the health officer.

To most physicians, reporting disease is rather tiresome and consumes some valuable time; as a result the physician often fails to make these reports. Frequently he puts it off, intending to report it when he has more leisure. But it is very easy to forget to make the report if it is not done immediately. Occasionally, it is found that physicians resent the necessity of reporting to the part time health officer, who in fact may be a competitor. This petty jealousy is not frequently found and less frequently justified. It is also true that many times the physician would make the report if he had a supply of report cards. Sometimes this is the fault of the health authorities and at other times is due to failure to have cards at hand.

The State Department of Health has decided to change the present system of reporting, believing that one more satisfactory to all concerned may be found. There are several very compelling reasons for this decision.

NEW SYSTEM OF REPORTING

First, the last regular session of the legislature revised the law governing the employment of county health officers in such a fashion that it is now optional and not mandatory for county courts to employ county health officers. This change in the law is deplorable, but since it is a law we have to face the issue. Several counties have discontinued the services of their county health officer, and we fear that upon the termination of the contracts now held by county health officers there will be more counties take this step. The county health officer being the liaison officer between the state health department and the profession, it is easily seen that the eyes of the health department will be completely blind in counties having no health officers. Certainly under the new law we cannot gain adequate knowledge of disease prevalence over the state and as a result the efficiency of the state health department is lowered in assisting physicians and county officers in the prevention and control of contagious diseases. Second, under the present system, only about twenty-five counties in the state report regularly, and approximately thirty-five counties failed to make any report during the first six months of 1933. No one can deny that these thirty-five counties have had some cases of communicable disease during a period of six months. Third, the present system is bulky, taking a great deal of filing space for cards sent into this office, as well as excessive clerical work in tabulating the information contained on the cards. Fourth, the physician is required under the present system to fill out a separate card for each case of communicable disease thus taking unnecessary time. Fifth, time is lost between the physician making the report to the county health officer and the summary sent in weekly by the health officer.

Arrangements have been made with the United States Public Health Service to furnish the Missouri State Health Department with enough penalty report cards to send to each physician a card each week. The card is very simple having several lines for reports, requesting only diagnosis, name, address, color, sex and age. Should the physician have several cases of disease of the same kind to report, we request that he simply state the number of such cases occurring, e. g., fifteen cases of influenza.

The card is a double type card, one half bearing the address of the physician and information concerning the reporting of disease. The other half, which is to be detached by the physician, is readdressed to the State Health Department and bears his weekly report. A notation on the card tells us the name of the phys-

ician reporting, and upon receipt of the card in this office he will be given credit for reporting and the number of cases of disease he reports. The physician will be requested to report each week, irrespective of whether or not he has attended a case of communicable disease. This will serve to give us a better index of the prevalence and location of disease over the state.

A system has been set up in this office so that on a moment's notice one may tell the name of the physician reporting, number of cases reported, regularity of reporting, and even the different diseases reported, by week, month or year. Furthermore, since the physicians will be listed alphabetically by counties, this same information may be secured for each town or county in the state.

It has been argued that reporting direct to this office rather than through the county health officer as at present, will lower the efficiency of quarantine measures in the county. This is not true, especially if the physicians cooperate with this department. Immediately following the receipt of complete returns at the end of the week, a summary will be sent to local health authorities, providing they are functioning in counties or cities. This report will reach the average health officer as soon as reports would come in from physicians over the county if the reports had been mailed to him from individual physicians.

In the second place, for adequate quarantine measures to be instituted, notification of the presence of communicable disease should be done immediately after diagnosis of the case. This immediate notification can be gained only by verbal or phone report, and if this is not practical the physician can impress the family with the importance of prevention of infection to others, and place a temporary physician's quarantine on the case pending notification of the health officer.

May we stress the fact that the individual physician is the best known health officer, for it is within his power to so handle his cases of communicable disease that there will be the minimum spread of disease. After all, quarantine measures are only legal backing for the judgment of the physician.

TRACING THE TRANSMISSION OF SYPHILIS

Dudley C. Smith and William A. Brumfield, Jr., Charlottesville, Va. (*Journal A. M. A.*, Dec. 16, 1933), point out that the follow-up of contacts and tracing sources of infection in order to be most effective should be started immediately. Infectious patients should be started on sterilizing therapy as quickly as possible so as to reduce the period of contagiousness and all suspects gotten under observation to make it possible to begin treatment at the first diagnostic evidence of infection. The patient is instructed to try to get his or her contacts to be examined and advised. Letters should be sent to the contacts requesting them to report for examination. When all other measures fail, the suspects should be reported to the health officer. To have contacts come for examination through the advice of their friends or associates is ideal. Each new patient informs his friends in turn until all contacts are brought under observation. Letters constitute the second method of search. An intelligent nurse can persuade contacts to report when other methods have been unsuccessful.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society met November 27 at Kirksville.

A communication from Dr. Charles H. Neilson, St. Louis, chairman of the Postgraduate Committee, and Dr. Ellis Fischel, St. Louis, chairman of the Cancer Committee, asked for a date to give a program on "Cancer of the Breast." On motion the program was scheduled for December 14 at Kirksville.

Dr. E. S. Smith, Kirksville, moved that it be suggested to Dr. Fischel that some other subject be discussed also. Seconded by Dr. James W. Martin, Kirksville, and carried.

The question of fees was discussed and on motion of Dr. Ralph O. Stickler, Kirksville, was tabled.

Dr. Smith moved that a vote of thanks be extended Dr. Spencer Freeman, Kirksville, for his energy and excutive ability as president of last year. Seconded by Dr. J. S. Gashwiler, Novinger, and carried.

A motion was made and carried that the secretary write Dr. J. B. Bridges, secretary of Schuyler County Medical Society, that the Adair County Medical Society welcomes the members of Schuyler County either individually or collectively as they might see fit.

Officers were elected as follows: President, Dr. Spencer Freeman, Kirksville; vice president, Dr. George E. Grim, Kirksville; secretary and treasurer, Dr. J. S. Gashwiler, Novinger; delegate, Dr. George E. Grim, Kirksville; alternate, Dr. J. S. Gashwiler, Novinger. Board of censors, Dr. Ralph O. Stickler, Kirksville; Dr. James W. Martin, Kirksville, and Dr. J. F. Dodson, Kirksville.

J. S. Gashwiler, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The regular business meeting of the Buchanan County Medical Society was called to order in the Missouri Methodist Hospital, at 8 p. m., November 15.

Drs. Samuel J. Freund and Riley M. Waller were elected to provisional membership.

Drs. C. S. Grant and George Hopson, having been provisional members for one year and their methods of practice approved by the board of censors, were unanimously elected to permanent membership.

Dr. Roger Moore, chairman of the medical service committee, introduced Miss Mabel Munroe, director of the St. Joseph Organization for Public Health Nursing, who addressed the Society on "How Local Charity and Hourly Nurse Service for Private Cases Are Managed." She especially stressed the importance of establishing a venereal clinic in St. Joseph. Her address was well received and at the close the

standing orders of the organization were endorsed by the Society.

Dr. J. T. Stamey reported the result of treatment in fourteen cases of specific cervicitis which was discussed by Drs. A. E. Holley, W. T. Stacy and W. D. Webb.

Meeting of December 6

The annual meeting of the Buchanan County Medical Society was called to order by the president, Dr. W. H. Minton, in the Missouri Methodist Hospital at 8 p. m.

Dr. F. M. Grogan, superintendent of State Hospital No. 2, desiring to transfer his membership from the Vernon-Cedar County Medical Society to the Buchanan County Medical Society, his transfer card was referred to the board of censors for further consideration.

Election of officers for 1934 resulted as follows: President, Dr. Willard C. Proud; vice president, Dr. Paul Forgrave; secretary, Dr. Emmett F. Cook; treasurer, Dr. John M. Bell; censors, Dr. A. J. Smith (1934-35-36), Dr. J. M. Allaman (1934); delegate, Dr. W. H. Minton; alternate, Dr. L. H. Fuson; member Auxiliary committee on public policy, Dr. Luther J. Ferguson, and member board of trustees until 1939, Dr. Daniel Morton.

Emmett F. Cook, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce rooms at Cape Girardeau at 8:00 p. m., November 15, with Dr. M. H. Shelby, Cape Girardeau, president, in the chair.

Members present were, Drs. M. H. Shelby, Sylvester Doggett, W. N. Howard, W. E. Yount, D. H. Hope, E. H. G. Wilson, J. H. Cochran, N. F. Chostner, A. M. Murphy, R. A. Ritter, Carl A. W. Zimmermann, Cape Girardeau, and Dr. W. W. Ford, Gordonville.

A communication from Dr. U. P. Haw, Benton, Councillor of the district, requested cooperation of the Society in a prospective clinic to be conducted by Dr. Ellis Fischel, St. Louis, chairman of the Cancer Committee of the State Association. It was moved, seconded and carried that the Society cooperate fully.

A letter from Dr. Paul Baldwin, Kennett, conveyed the information that at the last Five County Group meeting it had been resolved to invite Cape Girardeau County to join the group as Scott County had. An explanation of the plan was included and an indication of intentions requested. On motion of Dr. Doggett the secretary was instructed to write to Dr. Baldwin that no action had been taken at this meeting.

A letter was read from Dr. E. J. Goodwin, Secretary of the State Association, discussing the plan of the American Medical Association on "Emergency Relief for the Indigent Sick." It pictured a movement whereby medical relief is to be provided at the hands of the Federal Government for the above named under certain conditions. The secretary was instructed to secure further information.

The question of the Society furnishing speakers to address lay societies proposed by the Woman's Auxiliary was discussed. Dr. N. F. Chostner moved that the Society cooperate with the Auxiliary. In response to the Auxiliary's request for a speaker for the Parent-Teacher Association, November 16, at the Training School on "Nutrition and Growth of Children," Dr. H. V. Ashley was nominated. Dr. B. W. Hayes was selected to address the general council on the first Monday in December on "How Health Education Should Be Properly Taught."

Dr. Doggett moved that the president appoint a committee to censor prospective addresses by the members to lay organizations. Seconded and carried. Dr. Shelby announced he would make his appointment in a few days.

Dr. W. W. Ford read an extensive paper on "Diphtheria." The paper was well received and every member contributed to the discussion.

Carl A. W. Zimmermann, M.D., Secretary.

GASCONADE-MARIES-OSAGE COUNTY MEDICAL SOCIETY

The Gasconade-Maries-Osage County Medical Society met at Mt. Sterling, November 23.

Dr. Norman Tobias, St. Louis, gave an interesting demonstration on "Extragenital Infections" illustrating the different forms of infection with lantern slides and discussing the management of them.

Dr. Julius A. Rossen, St. Louis, spoke on "Diarrhea in Infants and Children" discussing the management and treatment.

The Society elected officers for the ensuing year as follows: President, Dr. J. O. Cooper, Linn; vice president, Dr. John H. W. Baehr, Hermann; secretary, Dr. O. H. Jones, Vienna.

O. H. Jones, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held December 8 in the Springfield Public Library. Dr. J. H. Fulbright, Springfield, president, presided. Attendance was thirty-two.

The following officers were elected to serve for 1934: President, Dr. Guy D. Callaway, Springfield; vice president, Dr. Wallis Smith, Springfield; secretary, Dr. John W. Williams, Jr., Springfield; treasurer, Dr. W. E. Handley (reelected), Springfield; delegate, Dr. J. D. James, Springfield; alternate, Dr. T. O. Klingner, Springfield; board of censors, Dr. Lee Cox, Springfield.

Dr. E. E. Glenn, Springfield, was elected to membership by transfer from the Lawrence-Stone County Medical Society.

The program was devoted to the subject of medical economics, led by Dr. William R. Beatie, Springfield. Dr. Beattie discussed the subject under the headings (1) Is there a new deal for the doctor? (2) Who is responsible for the poor sick? (3) Making the feet fit the times. (4) Should the doctor exact a retainer fee? (5) Is there an ethical way to inform the public about where it can get proper medical attention? (6) Insurance examinations. (7) How does the Bureau of Medical Economics of the American Medical Association help the doctor?

J. Newton Wakeman, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met in Joplin, November 21, with fifteen members and six visitors present.

The questionnaire read at the last meeting and referred to the president and secretary was reread and discussed. As there were no objections to the answers, it was agreed to forward this to the State Secretary.

The paper of the evening, "The Treatment of Luetic Deafness," was read by Dr. J. Raymond Kuhn, Joplin. The discussion was opened by Dr. S. A. Grantham, Joplin, and followed by Dr. Marchbanks, Pittsburg, Kansas; Drs. J. W. Hardy, Jr., D. R. Hill and M. O. Coombs, Joplin.

Dr. Revell, Columbus, Kansas, reported a case which on first appearance seemed to be smallpox but later proved to be syphilis.

Dr. Grantham reported a case with clinical diagnosis of typhoid fever which presented a large palpable gallbladder. At operation the duct was found to contain a plug of mucus which was milked out and the gallbladder contracted down to its normal size. Dr. Grantham also reported a case of unusual band restricting the bowel.

Dr. Marchbanks reported a case of extended illness which proved to be tuberculous empyema. Dr. J. E. Douglass, Webb City, commented that the recovery of the organism from the pleural exudate was quite unusual. Dr. Marchbanks also reported a case with a clinical diagnosis of encephalitis.

Dr. Revell reported a case of lymphatic leukorrhea in a child aged six months.

Dr. J. W. Hardy reported a case of nutritional anemia which responded in a spectacular manner to intramuscular injections of liver substance. Dr. Hardy also discussed a case of malaria in a five weeks' old infant.

Paul W. Walker, M.D., Secretary.

MARION-RALLS COUNTY MEDICAL SOCIETY

The Marion-Ralls County Medical Society met December 1 and elected the following officers for the ensuing year: President, Dr. F. E. Sultzman, Hannibal; vice president, Dr. W. D. Pipkin, Monroe City; secretary-treasurer, Dr. W. F. Lauten, Hannibal; delegate, Dr. J. C. Chilton, Hannibal; alternate, Dr. W. F. Lauten, Hannibal; censors, Drs. J. C. Chilton, E. T. Hornback, E. R. Motley, H. L. Banks, Hannibal; code and contract board, Drs. William H. Hays, F. E. Sultzman anl W. F. Francka, Hannibal.

F. E. Sultzman, M.D., Secretary.

PERRY COUNTY MEDICAL SOCIETY

The meeting of the Perry County Medical Society was called to order by the president, Dr. O. A. Carron, Perryville, at 8:30 p. m. at Dr. J. H. Graff's office, Perryville, November 14.

There was a general discussion among the members and visitors on the subject of minimum medical fees to patients, and a list was compiled to be voted upon at the next meeting of the Society.

The secretary read a letter and questionnaire received from Dr. E. J. Goodwin in regard to the Federal Emergency Relief Fund to be used to pay for medical services and supplies for indigent patients of the county. It was suggested that the secretary confer with the health authorities in completing the questionnaire. It will be taken up in more detail after more information is gained on the subject.

Dr. G. A. Blaylock, Perryville, proposed that the Society give a vote of praise and honor to the original members of the Society who are deceased and those who are retired, for their loyal support during the days of their service to the Society, it being organized some twenty years ago.

There was a general discussion on the subject of creating a medical credit bureau as a common means of evaluating a patient's credit. It was decided to take this matter up in more detail at our next meeting.

A motion was made by Dr. J. H. Graff, Perryville, and duly seconded and carried, that the president interview the City Council in regard to the activity of the present City Health Board, and to report at the next meeting.

The following were present: Drs. J. H. Graff, O. A. Carron, G. A. Blaylock, and J. J. Bredall, Perryville. Visitors: Drs. H. J. Knapp and W. H. Barks, Perryville.

The next meeting will be held on December 13 at 8:00 p. m. at Dr. O. A. Carron's office in Perryville.

Jerome J. Bredall, M.D., Secretary.

FIVE COUNTY MEDICAL SOCIETY

The meeting of the Five County Group at Malden, December 6, was the beginning of the sixth year of these group meetings.

The meeting began with a dinner at 6:30 p. m. served by the ladies of the Christian Church.

The following program was presented: "The Emotions and Their Physical Symptoms," by Dr. Lee D. Cady, St. Louis; "Allergy and the Practitioner: With Consideration of Emotional Aspects," by Dr. C. M. Stroud, St. Louis.

Both Dr. Cady and Dr. Stroud presented their subjects in a thorough and practical manner.

Since Scott County has joined the group it is a six county group.

The next meeting will be held in Scott County early in March.

Paul Baldwin, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met in the Bothwell Memorial Hospital, Sedalia, December 4, and was called to order by the vice president, Dr. Cord Bohling, Sedalia.

The committee appointed to fill in the questionnaire concerning the Federal Emergency Relief Administration made a report which was accepted by the Society.

The name of Dr. Charles Gordon Stauffacher was presented for membership in the Society and he was elected.

Officers for the ensuing year were elected as follows: President, Dr. Cord Bohling, Sedalia; vice president, Dr. W. T. Bishop, Sedalia; secretary, Dr. J. B. Carlisle, Sedalia; treasurer, Dr. A. E. Monroe, Sedalia; delegate, Dr. F. B. Long, Sedalia; alternate delegate, Dr. M. P. Shy, Sedalia; member of board of censors, Dr. C. B. Trader, Sedalia.

Dr. A. J. Campbell, Sedalia, read a most instructive paper on "Cirrhosis of the Liver." Dr. C. L. Parkhurst Houstonia, led in an interesting discussion which was participated in by a number of the members and closed by Dr. Campbell.

W. T. Bishop, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

12th Annual Meeting, Cleveland, June 11-15, 1934

President, Mrs. James Blake, Hopkins, Minnesota.
President-Elect, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

10th Annual Meeting, St. Joseph, May 8-9, 1934

President, Mrs. Hudson Talbott, St. Louis.
President-Elect, Mrs. William H. Goodson, Liberty.
Advisory Counsel, Dr. J. F. Harrison, Mexico.

NEWS NOTES

Probably the newsiest item this month is the announcement of the forthcoming *Auxiliary Quarterly*

Bulletin. It is designed to reach members early in January. It is hoped the doctors are heeding the injunction, "Take The Journal home to your wife."

The *Quarterly Bulletin* is the sequel to the appointment at the fall board meeting in Columbia, as reported in the November Journal, of a committee to consider the feasibility of such a supplement to this prized page in the State Journal. Through the fine initiative of our state president, Mrs. Talbott, a method of financing the quarterly was worked out that will make it possible to send to every county auxiliary president enough copies for her to send one to each member.

It is hoped the Quarterly will bring valuable messages and national, state and county news that could not otherwise reach members.

The Buchanan County Medical Society and Auxiliary have recently lost to Springfield, Green County, Dr. and Mrs. J. F. Owens, for many years residents of St. Joseph. When the Missouri Auxiliary was organized in Chicago in June, 1924, Mrs. Owens was a charter member. She has always been active in serving the county, state and national auxiliaries in many important capacities.

The November meeting of the Buchanan County Auxiliary was held with Mrs. J. C. Smith, St. Joseph. Each year sewing is done for each of the hospital auxiliaries in the city. On this occasion the sewing was for the St. Joseph's Hospital Guild. As the sewing went forward the national and state meetings were reported and national and state news notes read.

The Clay County Auxiliary at its recent annual election of officers chose Mrs. C. H. Suddarth, Excelsior Springs, as president, with ample and cooperative officers and departmental chairmen. This auxiliary in announcing the state essay contest on "What the National, State and Local Governments Are Doing for Health" offers first and second prizes of $3 and $2 to the senior and junior high school pupils. Successful contestants will enter the state competition where the prizes in each division are $10 for first prize and $5 for second prize. Mrs. J. A. Howell is Clay County's essay chairman.

The Kansas City Tuberculosis Society, as a part of its Christmas Seal campaign, presented an elaborate Christmas Seal Festival at the Scottish Rite Temple, December 4. An important event in this festival was the Christmas Seal Fashion Parade presented by the Woman's Auxiliary to the Jackson County Medical Society. The twenty-seven Christmas Seals from 1907 to 1933, much enlarged, were presented in order by twenty-seven auxiliary members. As each year's seal was displayed, an announcement was made of the outstanding event for that year in the program for tuberculosis prevention and control in Kansas City.

On the evening of November 28 the Woman's Auxiliary to the Lafayette County Medical Society entertained the Lafayette and Johnson County medical societies and the Johnson County Auxiliary at a buffet supper in the home of Dr. and Mrs. E. L. Johnston, Concordia. Honor guests were the president, Mrs. Hudson Talbott, and Dr. Talbott, St. Louis; president-elect, Mrs. W. H. Goodson, and Dr. Goodson, Liberty; Dr. and Mrs. D. S. Long and Dr. and Mrs. M. P. Overholser, Harrisonville.

Mrs. J. W. Lightner served delightfully as toastmistress on this occasion, closing the postprandial program with her own charming tribute in verse to the medical profession. Mrs. Lightner's son, Hon. James Lightner, mayor of Odessa, added to the evening's pleasures with several clever tricks in magic. Short business meetings closed a delightful evening.

Continuing the friendly custom of former years the Johnson County Medical Society and Auxiliary shared their respective meetings in October and again in November with the Medical Society and Auxiliary from Lafayette County. On both occasions the separate business and program meetings were followed with a joint social hour, in October with Dr. and Mrs. John A. Powers, Warrensburg; in November with Dr. and Mrs. W. R. Patterson, Warrensburg.

The Randolph-Monroe County Auxiliary set a good example by making mental hygiene its chief consideration at the November meeting. That Auxiliary is fortunate to have as secretary Mrs. O. O. Ash, Moberly, who is state chairman of mental hygiene in the Missouri Federation of Women's Clubs.

The program provided for Public Relations day by the St. Louis City Auxiliary was heard by two hundred and fifty guests including representatives from thirty-eight other health organizations of the city. The dinners served monthly to the St. Louis Medical Society by the Auxiliary are proving increasingly satisfactory to both organizations. Ticket receipts at the October dinner amounted to $95 and November to $120.

Along with the numerous Auxiliary services go the study of parliamentary law and contract bridge.

The second annual Public Relations Tea given by the Cass County Auxiliary was held December 14 at the home of Dr. and Mrs. M. P. Overholser, Harrisonville. Dr. Earl C. Padgett and Dr. Ferdinand Helwig, Kansas City, spoke on cancer control. The program was under the auspices of the American Society for the Control of Cancer and the Woman's Auxiliary to the Missouri State Medical Association.

A full house of health interested persons heard the valuable talks given by Drs. Padgett and Helwig.

It is with sorrow we note the death December 4 of Dr. Ola Putnam, Marceline. The sympathy of our entire membership is with Mrs. Putnam.

PATHOLOGIC PHYSIOLOGY OF TERATOMA TESTIS

Russell S. Ferguson, New York (*Journal A. M. A.*, Dec. 16, 1933), enumerates the factors determining the quantitative excretion of prolan A in the urine in 117 cases of teratoma testis. It is shown that the excretion of prolan A is determined by the embryonal character of the tumor, the extent of the disease and the effect of treatment. The effect of recurrence and metastasis on the excretion of prolan A in cases of teratoma testis is described.

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MANAGEMENT OF BLADDER DIVERTICULA

J. E. GLENN, M.D.
AND
C. E. BURFORD, M.D.
ST. LOUIS

Prior to the use of the cystoscope the diagnosis of bladder diverticula was made essentially at autopsy. For some years following the recognition of diverticula by roentgen ray and the cystoscope no radical attempt was made to remove them. Later several attempts at diverticulectomy were disastrous and none was successful until 1904 when von Eiselberg[1] removed extravesically a small diverticulum from the vertex of the bladder. Soon afterward Young[2] removed a large diverticulum extravesically and a smaller one intravesically from a patient who recovered.

Bladder diverticula are potentially present from birth and may be carried for years without producing symptoms. However, they may cause trouble early in life. O'Brien[3] reports a case of a two-year-old boy who developed an acute condition caused by a large diverticulum which he removed successfully.

Bladder diverticula are more common than is generally supposed. Of 12,500 admissions to one urological clinic this condition was found in 259, or about 2 per cent; more than 90 per cent occur in males. Those occurring in females are usually associated with urethral caruncle and stricture. The symptoms are not pathognomonic of the disease and although persistent and of increasing severity, they may simulate those of bladder infection, calculus or tumor as well as the symptoms caused by obstruction at the vesical neck.

Definite diagnosis is made only with the cystoscope and the cystogram. A roentgenogram of a ureteral catheter coiled within the diverticulum is of value and in some cases intravenous urography is helpful. The presence of a diverticulum can usually be determined by observing its orifice with the cystoscope, but to evaluate its size, contour and mobility cystograms taken in different positions are necessary.

The openings of most diverticula are found near a ureteral orifice but it is not unusual to find the opening in the apex of the bladder or in the area directly posterior to the interureteric ridge. Diverticula occur singly but are often multiple. T. D. Moore[4] reports a case presenting five large diverticula. Often the size becomes equal to or greater than the size of the bladder, which doubtless caused the early observers to refer to the condition as "double bladder." The complications are usually productive of the symptoms which lead to the diagnosis. As a rule infection is present. Stone and tumor are occasionally encountered. Vesical neck obstruction due either to prostatic hypertrophy or contracture is the most common activating factor. Neglected urethral stricture likewise aggravates silent diverticula and presents a clinical picture which is diagnosed with difficulty.

The management of bladder diverticulum depends upon the severity of the symptoms, the age and condition of the patient and the character of the complications. Complete surgical removal of both the diverticulum and the associated vesical neck obstruction is the desired procedure. Attention to the bladder neck obstruction may be sufficient when the diverticula are small and shallow and may be followed by normal function of the bladder. However, if the diverticulum is large and badly infected or if it contains stone or tumor, one must not consider it an elective problem but one requiring complete excision of the sac as well as the necessary attention to any vesical neck obstruction. Whenever possible the ureteral orifices should be identified and the course of the ureters determined before operation. When the opening of the diverticulum is adjacent to a ureteral orifice it is helpful to insert a catheter in the ureter

Read at the 76th Annual Meeting of the Missouri State Medical Association, Kansas City, May 1-4, 1933.

before or during operation as a safety guide for the preservation of the ureter.

Operation.—Diverticulectomy is preceded by a cystotomy after which a self-retaining retractor is inserted into the bladder and the walls visualized with a Cameron light. The opening of the diverticulum is located and dilated with finger or forceps. A circular incision just through the mucosa is made around the orifice and the margins of the sac freed from the underlying structures and grasped with several Ellis clamps. Sometimes by blunt dissection with gauze over the finger the mucosa separates readily. More often it does not. The suction method as described by Young may be used to draw the sac into the bladder where the dissection can be done under direct view. Some operators advocate grasping the distal portion of the sac with forceps and forcibly drawing it into the bladder. Some danger is undoubtedly attached to this method as the rectum or other viscus adherent to the diverticulum may be injured. Lower advocates packing the sac with gauze before attempting the dissection.

When the sac cannot be removed intravesically without undue effort or trauma it should be attacked extravesically by denuding the bladder of as much of its peritoneal covering and other tissues as is necessary to thoroughly expose the diverticulum which is then completely freed from adjacent structures, clamped close to the bladder and excised. The opening is closed with catgut and a Penrose drain placed outside the bladder at the site of closure. There should be no haste in removing this drain. As long as there is any chance for the escape of urine, drainage must be provided to prevent perivesical infection or a urinary infiltration. A Freyer drain is placed in the bladder and closure made of the cystotomy wound. Later when the urine is fairly clear and free from clots the Freyer drain is removed and a catheter retained in the urethra until closure above is complete. Essential to the success of the operation are the complete removal of the mucosal lining of the sac and proper attention to any vesical neck obstruction.

In addition to the commonly found complications of infection and bladder neck obstruction we have encountered urethral stricture and fistulae, large multiple diverticula with immense bilateral inguinal hernia, bladder calculi and stone in the diverticulum. In one case we found at operation the sac contained a large calculus and also the ureteral orifice. The stone was removed, the sac excised and the ureter preserved.

Last year Stewart and Muellerschoen[5] reviewed the literature and reported the twenty-sixth case of bladder diverticulum containing a primary carcinoma. We now report two additional cases.

REPORT OF CASES

Case 1. F. H., aged 67, railroad executive; first examined February, 1931. Complained of frequency and burning, also occasional hematuria. Urine cloudy, contained pus, bacteria and a few red blood cells. Residual urine 3 ounces. By rectum the prostate was found smooth, symmetrical and moderately enlarged. Cytoscopic examination revealed a mild cystitis and a prostatic collarette of moderate size. Posteriorly and laterally to the right ureteral orifice was an opening of a diverticulum about three fourths inch in diameter. From it protruded a papilloma which overhung the lower border of the opening. The observed portion of the growth could readily be raised with the tip of a fulgurating cable and revealed no attachment to the margin of the opening. Operation was advised and refused. The growth was fulgurated and there was no bleeding for several months. However, the frequency and burning were but partially relieved and the residual urine remained unchanged. Fulguration was repeated in May and again operation was advised and refused. Soon afterward he complained of vague pains in the pelvis and later of inability to sit comfortably in a chair. Finally in November he entered the hospital for operation. His symptoms had grown progressively worse until he was unable to work without undue effort and excessive fatigue.

Operation.—The bladder was opened widely exposing the opening of the diverticulum the circumference of which was thickened and indurated but it was still free from any attachment of the growth which protruded from the sac for about an inch into the bladder. Through the posterior wall of the bladder a mass about the size of a lemon was palpated in the sacral region, presumably a retroperitoneal gland. The right side of the bladder was denuded exposing the diverticulum which was removed extravesically. A liberal circular incision was made but there remained considerable thickened tissue into which were implanted twenty radon seeds. The wound was closed with catgut and drained extravesically. The prostate was then enucleated and a Freyer drain inserted into the bladder before closing the cystotomy wound.

The diverticulum was about two inches in diameter and was practically filled with a tumor of cauliflower appearance attached to the distal half of the sac. The pathological report of the tumor was carcinoma. The prostate showed neither macroscopic nor microscopic evidence of malignancy. The patient made satisfactory progress for nine days and then suddenly developed lobar pneumonia. He died on the eleventh postoperative day. There was no autopsy.

Case 2. H. B., clerk, aged 48; first examined March, 1931. Only complaint was occasional hematuria which was accompanied by some burning on urination. The urine was cloudy and contained a few red blood cells, a moderate amount of pus and many rods. By rectum the prostate was normal. There was no residual urine. Cystoscopic examination showed a mild cystitis. Lateral to the right ureteral orifice was the opening of a diverticulum one fourth inch in diameter. A cystogram was made showing the diverticulum almost spherical in outline and about three inches in diameter. No filling defect could be demonstrated within the sac. Through a ureteral catheter coiled within the diverticulum an

ounce of 1 per cent silver nitrate was injected. Within a few days the urine became almost clear and there were no symptoms for ten months. In February, 1932, there was slight hematuria and the cystoscopic picture remained unchanged. The silver nitrate was again used but with no appreciable results.

Operation was advised. In June, 1932, an extravesical diverticulectomy was done. On the lateral and posterior surfaces of the sac and well away from the neck was a tumor with a sessile base about an inch in diameter. Pathological report was carcinoma. The patient made an uninterrupted recovery from the operation except for an epididymitis and left the hospital on the twenty-first postoperative day. He soon returned to work but because of general weakness and recurring pain in the lower abdomen and pelvis he has worked but about one fourth the time.

The urine is normal except for a faint trace of albumin and an occasional leukocyte. Cystoscopic examination shows no bladder involvement and there is no urinary disturbance. Roentgent ray examination shows no definite evidence of metastasis in the bones. Although unable to demonstrate it we believe he is suffering from some metastatic involvement. His case has been particularly interesting as it is one of the few cases reported with a primary carcinoma in a bladder diverticulum which was not complicated by some form of vesical neck obstruction.

COMMENT

1. Bladder diverticula are not rare and frequently cause bladder symptoms which persist until the diverticulum is discovered and removed.
2. Prostatectomy or cystotomy for any reason should be preceded by a cystoscopic examination or cystogram unless there is a definite contraindication.
3. Radical excision although preferable is not always advisable but when the sac contains either stone or tumor modified procedures should not be employed.
4. Two cases (27th and 28th) of bladder diverticulum containing primary carcinoma are reported.

958 Arcade Building.

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DIVERTICULA OF URINARY BLADDER

From the standpoint of the surgical indications, Robert H. Herbst, Chicago (Journal A. M. A., Jan. 20, 1934), believes that diverticula of the urinary bladder should be classified into (1) small neck retention diverticula and (2) large neck nonretention diverticula. The retention types are found more commonly associated with fibrosis and bar formation at the bladder neck. The less common nonretention types are usually found associated with prostatic hypertrophy.

AVOIDING COMPLICATIONS IN GYNECOLOGICAL RADIUM THERAPY

E. KIP ROBINSON, M.D.

KANSAS CITY, MO.

In treating certain benign and malignant conditions in the female pelvis radium has come to occupy an important place. It is now the generally accepted method of treating all cases of cervical carcinoma, early and late, because the results are superior to those following surgical treatment and the primary radiation mortality is practically nil. It is used alone or in combination with surgery in many cases of carcinoma of the body of the uterus and may some day be accepted as the only method of treating this lesion. It is used with great satisfaction in many cases of uterine fibroids, especially where there is a contraindication to surgery. Its use is being extended more and more to cases of functional and myopathic uterine bleeding with excellent results in careful hands. Certain vaginal and vulvar tumors respond satisfactorily to the well directed use of radium. Ovarian malignancy is often treated with external radiation before and after operation and palliatively.

Radium is a very powerful agent, therefore it is necessary to observe certain precautions in its use. All cases are not alike and one must suit the treatment to fit the case and not the condition of the patient to suit the treatment. It is the purpose of this paper to point out certain precautions and contraindications in radium treatment in the female pelvis so that complications may be avoided.

One of the greatest handicaps to radium therapy is infection. Many cervical carcinomata are badly infected so it is necessary to clean up the infection before introducing capsules into the canal. The radium rays are not in the slightest germicidal; indeed, bacteria thrive during the acute radiation reaction which always appears a few days after the treatment and persists for a week or two. Often it is better to delay the intra-uterine treatment and get as much shrinkage of the growth as possible by external radiation followed by a vaginal application. The intra-uterine capsules may then be inserted with more ease and with less danger of infection. During the course of treatment it is necessary to see that the cervical os remains patent so that drainage may continue and pyometra not occur. At the time of the intra-uterine application it is sometimes advisable to introduce a small drainage tube beside the capsule to permit the escape of infected material.

Read at the 76th Annual Meeting of the Missouri State Medical Association, Kansas City, May 1-4, 1933.

It is a good rule to adjust the strength of the capsules so that the proper dose can be administered not later than forty-eight hours. The incidence of infection increases with the length of time the radium remains in the canal. If chills and fever develop the radium should be removed at once. Some clinics have adopted the practice of treating cervical carcinoma with small doses of radium left in place over a long period of time, following the teaching of Reguad in Paris. The technic requires that the capsules be removed each day, cleaned and reinserted, and this repeated for about seven days. It is not in the province of this paper to discuss the relative merits of the long small dose treatment over the short large dose method other than to say that in either system infection is to be watched for and prevented if possible.

The process of introducing intra-uterine capsules should be attended with no dilation if possible, and, at the most, only the very gentlest stretching. The dangers of rough handling consist of stirring up infection and disseminating cancer cells into torn lymphatics and blood vessels.

Interstitial radiation carries the hazard of puncturing through infected carcinomatous tissue; it should be reserved for a final step in the course of treatment after as much shrinkage as possible has taken place by the other previous means of therapy.

It is sometimes advisable to remove exuberant cauliflower growth with the cautery or the endothermic loop. It is dangerous to cauterize too deeply and then immediately radiate because the devitalized burned area will not stand much radiation and an extensive slough may occur and reach into the nearby peritoneal cavity.

In treating carcinoma of the cervical stump following subtotal hysterectomy for uterine fibroids, Clarke warns of the danger of a loop of intestine being adherent to the upper portion of the stump and becoming injured by excessive radiation.

Protecting the bladder and the rectum from irreparable damage in treating cervical carcinoma is perhaps the most important responsibility of the operator. The carcinogenic dose extends over a radius of about 5 centimeters from the source of radiation. Structures within that range receive a considerable dose of radiation, but beyond this zone the dosage has fallen off to such an extent that it is ineffective. Embryonic neoplastic cells are much more vulnerable to radiation than is adult normal structure. Distance from the source of radium is the greatest safeguard against injury. Packing the vagina thoroughly to keep the bladder and rectum a good distance out of range insures safety better than attempts at metal shielding. The bladder must be kept relatively empty during the treatment. Some men prefer to leave an indwelling catheter in place but catheterization every eight hours will prevent distention in most cases.

The tight vaginal packing prevents the capsules from slipping from the uterine canal but if there is the slightest danger that this might occur even with the packing, the tandem may be lightly sutured to a lip of the cervix.

Carcinomatous growths extending along anterior or posterior vaginal walls, presenting far advanced stages of the disease, may be treated with radium with very gratifying results whereas surgery or cauterization would be entirely out of the question. Rectovaginal and vesicovaginal fistulae may be avoided by properly adjusting the dose, the filtration and the distance of the radium from the lesion.

In spite of precautions, mild complications do occur in a small percentage of cases. These consist of (1) proctitis which is annoying but temporary and alleviated by frequent rectal irrigations of saline followed by olive oil and bland diets, bismuth and opium; (2) cystitis which is controlled by urinary sedatives and bladder irrigations, and (3) vaginitis which is treated by frequent mild antiseptic douches. Asherson describes "ovarian neuralgia" in three cases which is treated symptomatically and with glandular extracts.

Menopausal symptoms which occur of necessity in younger individuals treated for uterine malignancy, are treated with ovarian extract, orally and hypodermically.

Lavedan has conducted experiments on blood changes during radiation and concludes that there is sometimes a leukopenia particularly of lymphocytes but that it usually disappears in from one to three months.

Radiation sickness is an annoying condition met with in a moderate number of patients. It may be immediate, consisting of malaise, loss of appetite, headache, vomiting or diarrhea. It may be late, with nausea, abdominal pain, general weakness or anemia. Lester Smith gives viosterol to these patients with marked relief from all symptoms except possibly the diarrhea. He believes the action is effected in some way through the calcium-phosphorus metabolism in the body.

There are certain rare late sequelae which may occur many years after treatment for pelvic malignancy, such as trophic ulcers of the bladder or rectum. These may require excision or cauterization. Szenasy reports late ulceration of skin in patients who received extensive radiation and on whom it was necessary to do

removal and plastic repair. Ernst Philipp reports five cases of damage to the pelvic bones in patients who received such extensive treatment.

Before beginning any type of radium treatment an accurate diagnosis should be made so that the exact condition of the patient will be known. The position of the uterus and direction of the canal and any associated pathological disease should be discovered. Particularly is this true of pyosalpinx because such infection may be stirred up by radiation and cause a peritonitis. If possible pus tubes should be removed before administering treatment.

Various precautions are to be observed in radiating uterine fibroids. First, one larger than a three and a half months' pregnancy is not amenable to radiation therapy because of the danger of producing central necrosis. Second, a fibroid which is growing very rapidly had better be removed surgically because the action of the radium is often times too slow and degeneration may occur in the tumor. Moreover a fibroid producing much pain or pressure symptoms reacts too slowly to radium therapy and should be removed surgically. A tumor which shows any kind of degeneration or is associated with other uterine or adnexal lesions is a surgical rather than a radiation problem. Fibroids pedunculated on either the mucous or serous surfaces should be removed surgically for they are often degenerated or infected and radium accentuates the condition. It is well to do a preliminary dilatation and curettage to rule out a carcinoma of the fundus before beginning treatment because the dose for fibroids is entirely inadequate for carcinoma. Finally, myomas in women in middle life or younger should be treated by subtotal hysterectomy (unless there is a definite contraindication) with preservation of the ovaries because the radiation dose will most certainly bring about an artificial menopause.

The hazards of treating carcinoma of the body of the uterus consist of over-radiating the bladder or rectum and inducing sepsis. The radiation treatment is certainly far less hazardous than surgical extirpation. Voltz has estimated the primary surgical mortality as about 10 per cent and Döderlein has recorded a primary radium mortality of 3 per cent in 107 cases.

Certain cases of benign or myopathic bleeding in young women which have not responded to endocrine therapy or other conservative measures, may be corrected by radium treatment. The dose must be very small (two or three hundred milligram hours) ; and it is far better to err on the conservative side and to repeat the dose than to give too much. It must be remembered that sterility may occur without the cessation of menstruation if the ovaries have been sufficiently damaged.

This sterilization may be permanent or it may be temporary, lasting several months or a few years. The researches of M. R. Robinson, Bagg, Little and others have shown that the primordial ovum is more radioresistant than the developing ovum, and that the latter may completely escape destruction from certain doses of radiation. Therefore they conclude, that where clinically indicated temporary sterilization is a safe procedure from a genetic point of view.

In cases of adolescent menorrhagia, to avoid the bad effect of injury to the ovaries P. Werner radiates the spleen. He obtained relief in 70 per cent of cases but it is usually temporary. The theory is that the blood increases its coagulability because of the liberation of larger amounts of clot forming ferments through destruction of blood cells in the spleen.

Murphy and Goldstein made an extensive study of the effects of preconception and postconception pelvic irradiation on the health of children born subsequently. They report that in 650 pregnancies associated with pelvic radium or roentgen irradiation, 24 per cent ended in abortion. One out of every ten or eleven children born after preconception pelvic irradiation was unhealthy and the infant mortality rate was lower than that for the United States in general. One out of two children born after postconception irradiation was unhealthy. The conclusions are therefore that preconception maternal pelvic irradiation is entirely free from danger to subsequent offspring, but postconception irradiation is extremely likely to injure the growing embryo seriously and that such injury may result in the birth of a seriously defective child (the deformities include chiefly injuries to the central nervous system giving rise to microcephaly, anacephaly, hydrocephaly, etc.).

The treatment of cervical carcinoma in the pregnant woman is often a delicate and a dangerous problem to the mother. The greatest danger according to Pankow is sepsis. Hemorrhage is also very apt to be uncontrollable following delivery. If radiation is to be used it is best to empty the uterus early in these cases and after a reasonable wait for involution, apply the radium in proper fashion.

CONCLUSIONS

1. By properly controlling treatment in carcinoma of the cervix, serious complications may be avoided and the results in all stages are superior to surgery.

2. Choosing the type of uterine fibroids care-

fully is necessary before administering radium therapy.

3. Certain minor local and general sequelae are occasionally observed but can be adequately controlled.

4. Well controlled preconception pelvic radiation carries no hazard for the offspring but postconception pelvic radiation is extremely dangerous to the growing embryo.

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ENLARGING CONCEPTIONS OF MYCOTIC INFECTIONS OF THE FEET AND HANDS

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It is interesting to note that the science of mycology antedates that of bacteriology. Our knowledge of fungi pathogenic to man starts with Langenbeck's discovery in 1839 of the vegetable parasite causing thrush. Shortly thereafter other diseases were discovered to be due to fungi.

After these important findings came the era marked by the monumental discoveries of the bacterial origin of many serious diseases and mycology was relegated to the background by bacteriology. However, within the last few decades it has been discovered that a great many diseases are of fungous origin and mycology has come to be a study of increasing importance. It is gratifying in this age of compilation to know that some of the most important discoveries in fungous diseases have been made by Americans.

Fungi are widely distributed in nature. They are responsible for many plant and animal diseases and play an important part in the spoilage of food and other organic products and bring about chemical reactions important to mankind. While practically every branch of medicine is affected by fungous diseases, it is in the field of dermatology that fungi play their greatest roles as pathogenic agents. Many skin diseases are due to fungi, ranging from such a banal infection as tinea versicolor to coccidoidal granuloma, a disease of high mortality.

We may divide the mycotic infections of the skin into three groups: (1) All superficial dermatoses other than Monilial due to fungi; (2) all superficial dermatoses due to the Monilia, which are yeast-like organisms, and (3) those mycotic diseases, such as actinomycosis, blastomycosis, etc., which invade the skin deeply, tend to become systemic and may end fatally.

In the first group we place a large number of superficial mycotic diseases, such as ringworm of the feet and hands, ringworm of the scalp, etc.

The second group, which has only come to be recognized within the last decade or so, is increasingly important. The superficial dermatoses caused by Monilia organisms which if not identical with are closely related to the Monilia albicans causing thrush, are: Erosio interdigitalis; paronychia; the intertriginous type occurring beneath breasts, in flexures, axillae and beneath overlapping skin folds; onychomycosis (Monilial); perleche, a superficial inflammation at oral commissures; generalized types of an exfoliative or vesiculopustular character; water bath mycosis, and superficial glossitis and stomatitis of an acute or chronic nature.

The Monilia infections are usually found on a pathological terrain and are more commonly seen in marasmic infants, diabetic and hyperglycemic persons, hyperobese individuals with overlapping skin folds, those who work in special industries such as canning and packing fruits, and people such as washerwomen who have their hands immersed in water for prolonged periods.

The third group which is characterized by deep invasion includes diseases such as Madura foot, actinomycosis, blastomycosis, coccidoidal granuloma, etc.

Attempts have been made to prove that skin diseases, such as psoriasis, lichen planus, pityriasis rosea, and many others are due to fungi. It is the opinion of many dermatologists that the pendulum has swung too far in the direction of trying to place the etiology of every dermatosis on a mycotic basis. Monilia are found on the normal skin and the mere finding of such organisms in a skin lesion cannot be taken as

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sufficient evidence that they cause the dermatosis in question. Obviously it is impossible to cover even the high points of the many conditions which I have enumerated so I shall devote the remainder of my paper to fungous infections of the feet and hands.

MYCOTIC INFECTIONS OF THE FEET AND HANDS

Mycotic infection of the feet and hands is the most prevalent of all skin diseases and the majority of us have or have had this infection. Only in the last two decades has this disease become widely disseminated and its true nature recognized. Beyond doubt the disease was present long before we recognized it and many skin lesions of the feet and hands formerly described as eczema, dyshidrosis, pompholyx, and thought to be due to acidity, were in reality due to mycotic infection. It is generally admitted that the mobilization of great numbers of men during the war and the widespread participation in athletics have been potent factors in the spread of the disease.

The patent medicine venders, keenly aware of the general prevalence of the disease, have advertised their products as being specifics for this infection. In their efforts to push their wares on the public they have resorted to widespread newspaper, drugstore and even radio and billboard advertising.

The fungi which attack the feet and hands are capable of producing several types of lesions. These may be classified into the six groups, viz.:

1. The macerative interdigital type in which the epidermis of the opposing surfaces of the digits is macerated, sodden and often detached the surface beneath being acutely inflamed and moist. This is a very common type and is usually most marked in the fourth interdigital space of the toes.
2. The vesiculobullous in which pinhead to thumb-sized vesicles and bullae appear on the palms and soles and sides of hands and feet.
3. The scaly or exfoliative in which fine or coarse scales appear between the digits and on the soles and palms and sides of the feet and hands. Removal of the scale usually shows an inflammatory and often oozing base.
4. The diffuse, hyperkeratotic type in which large areas of the soles or palms are covered by a thickened horny skin often containing oozing fissures.
5. The erosio interdigitalis type due to Monilia which starts as a superficial inflammatory process in the third interdigital space of the hands. It is usually seen in those who have their hands immersed in water a great deal.
6. The mixed type in which both the ordinary type of fungi and Monilia are found.

Combinations of the above types are common. For instance, vesicular, hyperkeratotic and macerative lesions are not infrequently seen in the same patient.

Circinate or typical annular ringworm of the hands and feet, while occasionally seen, is relatively quite rare.

Fungous infections of the hands, which are much less common than fungous infections of the feet, often present special characteristics. Monilia infections of the erosio interdigitalis type are much more frequent on the hands than on the feet. Pompholyx, dyshidrosis and similar eruptions of the hands are now thought by many dermatologists frequently to be due to fungi.

The fungi are found with much less ease from the hand lesions than from lesions of the feet. The majority of the hand lesions are considered by many as being an allergic manifestation secondary to true ringworm of the feet which is capable of producing a dermatophytide, an eruption somewhat analogous to the tuberculid. Hyperhidrosis, bromidrosis and severe pruritus with its attendant scratch marks are frequent concomitants.

The complications of fungous infections of the feet and hands are numerous and important. They may be grouped in four classes.

We will first consider those infections which are due to the fungi attacking the involved areas. A small proportion of the cases are complicated by onychomycosis or fungous infection of the nails. Paronychias are not infrequent in Monilia infection of the hands. Monilia infection may also be accompanied by perleche, glossitis and stomatitis, as well as an involvement of intertriginous areas, as beneath the breasts and in the groins. Mycotic pruritus ani and vulvi are not infrequent accompaniments of all types. Tinea cruris, commonly known as "Jock strap itch," is often present when the offending organism is the Epidermophyton inguinale.

The second group includes those pathological conditions which arise from secondary invaders obtaining access through a skin damaged by the action of the fungi. The offending organisms are, as a rule, of the staphylococcic and streptococcic groups. Pustules, furuncles, phlebitis, lymphangitis, lymphadenitis, recurrent erysipeloid attacks and even septicemia may occur. Such complications, while occurring only in a small proportion of the number affected, are actually quite frequent since such a large percentage of the population suffers from fungous infections of the feet and hands.

In the obituary notices of The Journal of the Missouri State Medical Association during 1932 is recorded the death of a physician in Missouri due to streptococcic cellulitis which was secondary to epidermophytosis. Early and proper therapy will prevent the great majority of these serious complications.

The third group includes the "id" eruptions,

which are an allergic manifestation. The exact mode of production of the "id" eruptions has not been agreed upon. One theory is that they are due to the hematogenous deposition of the fungi in an allergic skin. Fungi are usually not found in these eruptions which are, as a rule, remote from the primary focus.

There are many types of the "id" eruptions. Papular, vesicular, bullous, lichenoid and urticarial lesions, as well as erythema multiforme, erythema nodosum and generalized exfoliative dermatitis have been described as occurring secondary to fungous infections of the feet and hands. Acute and resistant cases are prone to develop these complications which are often accompanied by intense pruritus and frequently characterized by chronicity and persistence in spite of all therapy.

Asthmatic attacks have been described as due to ringworm of the feet and hands. Prolonged disability is not infrequent in the severer types of "id" eruptions.

A fourth group of complications are those due to improper and unskilled therapeutic measures. Severe dermatitis venenata, widespread denudation of epidermis due to strong keratolytics, phenol gangrene and even sloughing of digits after prolonged application of liquor potassii in treating onychomycosis have occurred. The unskilled use of roentgenotherapy has resulted in severe burns, even to such an extent as to necessitate amputation.

ETIOLOGY AND PATHOLOGY

The types of fungi causing dermatophytosis of the feet and hands, in the order of frequency found, are the Epidermophyton interdigitale, Epidermophyton inguinale, Epidermophyton rubram, Epidermophyton gypseum and Monilia organisms which if not identical with are closely related to the Monilia albicans causing thrush.

Differentiation of these types is made by culture. On Sabouraud's media the organisms grow as a whitish deposit somewhat resembling the white mold one occasionally sees on leather. On microscopic examination they are found in the affected tissue as thread-like, branching mycelia, 3 to 5 microns wide and often in sufficient numbers to produce a loose network appearance. Monilia are also found in those cases due to the Epidermophytons. On Sabouraud media, Monilia produce a whitish pasty growth. Microscopic examination reveals long, slender, branching mycelial threads, budding yeast cells and spore clusters.

In fixed sections all types of the fungi are found invading the superficial horny layers of the epidermis. The organisms have occasionally been found in the draining lymph glands and have even been cultivated from the blood stream in a few instances.

DIAGNOSIS

While it is true that the majority of eruptions which appear on the feet and hands are due to fungi, there is too much of a tendency at present to diagnose every dermatosis affecting these areas on this basis. It must be emphasized that the essential characteristics of mycotic infections of the feet and hands are those of eczema, i. e., vesiculation and exudation.

Scabies, impetigo contagiosa, palmar and plantar syphilis, erythema multiforme, dermatitis venenata and many other skin infections are found on the hands and feet and must be differentiated.

Occupational dermatitis venenata of the hands often very closely simulates fungous infection. Mycotic infections usually start between the digits and spread by continuity to other areas and are as a rule benefited by antiparasitic treatment, whereas dermatitis venenata is usually made worse by such therapy.

The microscopic diagnosis is made by obtaining the roof of a vesicle, a scale or bit of macerated epidermis from an active lesion, placing it on a slide and covering with a drop of 10 to 20 sodium or potassium hydroxide solution which dissolves the epidermal cells leaving the fungi intact and, after an interval of ten minutes, examining under low and high power. While an occasional yeast cell or even a fragmented mycelium may be found on the normal skin or on skin otherwise affected, they are never in such profusion as in true mycosis. Monilia may be cultured from the normal skin, therefore the finding of these organisms in profusion by direct microscopic examination is of more significance than finding them by culture.

TREATMENT

Certain measures of a prophylactic nature are advisable. Careful foot hygiene, avoidance of gymnasiums and like places in bare feet and the use of a mild antiseptic power will help prevent infection.

Antiparasitic foot baths of 10 per cent sodium thiosulphate and 0.5 to 1 per cent sodium hypochlorite are now frequently used in school gymnasiums and athletic clubs.

Inasmuch as over 50 per cent of college students and adults in general have been found to have an active or inactive ringworm infection of the feet, these measures, as Sulzberger has noted, act in the majority of instances as a therapeutic rather than as a prophylactic measure. However, since their use has resulted in

a decrease in the acute flare-ups they should be employed as indicated.

Mycosis of the hands and feet is no exception to the rule that the curability of a disease varies indirectly to the number of remedies used in its treatment. Treatment should be based an clinical manifestations. Individualization is necessary because there is no one remedy which can be applied successfully to all types. Obviously, it would be improper to use a strongly keratolytic ointment on a superficially eroded, acutely inflamed case complicated by an ascending lymphangitis. The widely advertised patent medicines which are advocated as a panacea for all types have complicated many cases.

Acute vesiculobullous, secondarily infected, widely eczematized and denuded, oozing cases, should be brought well under control by moist compresses and soaks before other measures are used. Saturated solution of boric acid, 10 per cent solution of sodium thiosulphate, 1:5000 bichloride of mercury, 1:15 Burow's solution and 1:4000 potassium permanganate are the solutions commonly used. The affected area should be immersed in one of the above solutions for from 20 to 30 minutes twice a day. Continual immersion or constant compresses are often necessary where there is severe ascending infection. The solutions may be arranged in basins in which the patient can stand while shaving or washing.

In the nonacute cases Whitfield's ointment, which contains 3 per cent salicylic acid and 5 per cent benzoic acid, is one of the best. Salicylic acid and benzoic acid in the same proportions in alcohol containing 10 per cent acetone can be used to advantage on individuals with marked hyperhidrosis and in those who object to ointments. The ointment should be applied to the affected areas each night. In the morning an antiseptic powder should be sprinkled on the affected areas. The majority of cases respond to this type of therapy. The following is a useful formula for the powder:

℞	Thymol	gr. 15
	Boric acid	dr. 2
	Zinc oxide	oz. ½
	Talc. q. s.	oz. 2

In cases failing to respond, 1 to 2 per cent iodine in ointment form; ¼ to ½ strength tincture of iodine; 5 to 10 per cent sulphur ointment; 5 to 10 per cent ammoniated mercury ointment; 5 to 10 per cent silver nitrate solution; 1 per cent chrysarobin and 5 per cent crude coal tar ointment may be tried in the order given.

In the hyperkeratotic types 10 to 20 per cent salicylic acid ointment may be applied for a few days and followed by mild ointments.

Roentgenotherapy and ultraviolet therapy are the physical agents commonly employed. Ultraviolet rays in suberythema doses at frequent intervals are of value in some cases. Roentgenotherapy has no specific action on the fungi but acts indirectly by checking the hyperhidrosis and changing the terrain favorable to the fungi. Nail infections also often seem to be benefited. Its use is indicated in cases having a marked hyperhidrosis. Its employment should be limited to those who are expert in its use as many cases of severe radiodermatitis have been reported.

Fungous infection of the nails may be treated by applying 4 to 6 times daily a 2 to 4 per cent chrysarobin solution in chloroform. Avulsion of the affected nail and constant application during its period of regrowth of an antiseptic ointment under a finger stall is probably the best therapy. Some cases are not even cured by this procedure. Cases of tinea cruris should be treated by mild ointments and lotions because of the sensitiveness of the scrotum. The Monilia infections are often resistant to therapy.

Removal of contributory influences which are often present in Monilial infections such as diabetes, hyperglycemia and prolonged immersion of the hands in water, is essential. Antiparasitic treatment, as outlined above is then indicated. It is to be emphasized that antiparasitic treatment is to be employed in all types of mycotic infections for some time after all clinical evidence has disappeared. Only in this way can silent foci be eradicated.

Shoes should be disinfected during and after treatment by 5 per cent formalin or 5 per cent lysol and sprinkled inside with an antiseptic powder.

The "id" types of eruption should be treated by soothing lotions and ointments. Tricophytin, as advocated by Sulzberger and Wise, may be tried in severe and resistant types of "ids."

PROGNOSIS

Most cases yield to proper treatment. Some cases are very recalcitrant to all therapy. Mycotic infection of the nails is often difficult to cure. Chronic Monilia infections are more resistant than other types. Generalized "id" eruptions are often very resistant. Complete eradication of all foci is difficult and recurrences are common.

Temporary disability in the complicated cases is not uncommon. Because such a high percentage of the population is affected, such cases are frequently observed. A small proportion of the cases complicated by ascending lymphangitis and cellulitis develop a septicemia and end fatally.

SUMMARY AND CONCLUSIONS

1. Fungi are responsible for a large number of skin diseases.

2. Within the last two decades a large group of dermatoses affecting the feet and hands have come to be recognized as of mycotic origin.

3. Conservative estimates are that over 50 per cent of the population is suffering from mycotic infections of the feet or hands.

4. Treatment should conform to the clinical manifestations.

5. Some cases are recalcitrant to therapy.

6. While most fungous infections of the hands and feet are of a mild nature, disabling and even fatal complications can ensue.

7. Proper and early treatment will prevent the majority of complications.

8. Monilia infections have recently come to be recognized as of considerable importance.

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TRAUMATIC EPITHELIAL CYSTS OF THE SKIN

Max S. Wien and Marcus R. Caro, Chicago (Journal A. M. A., Jan. 20, 1934), direct attention to traumatic epithelial cysts of the skin which have been previously reported under various titles. They report three such cases with histologic examination in two. Traumatic epithelial cysts develop as a result of injury to the skin, usually produced by a blunt or tearing instrument. Such cysts occur most often on exposed sites, such as the fingers and palms, and are especially prevalent in those occupations which predispose to injury. The origin of the cyst is most probably from a bit of epidermis which has been torn from the surface and implanted in the corium. It may also originate from deeper epithelial structures in the absence of surface injury. Here the cyst may form about a foreign body by proliferation of epithelium from the hair follicles or the glandular structures of the skin. Occasionally a foreign body granuloma with cyst formation may simulate an epithelial cyst of traumatic origin.

THE NONSURGICAL TREATMENT OF PULMONARY TUBERCULOSIS; INCLUDING ARTIFICIAL PNEUMOTHORAX

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In presenting this paper I hope to interest the general medical profession in the nonsurgical treatment of pulmonary tuberculosis. I also wish to emphasize the importance of artificial pneumothorax and to urge its inclusion in our medical programs. All forms of treatment of tuberculosis aim to restore health and earning power to the patient, to protect public health and to prevent breakdown of those who recover.

Having no specific for this disease, our present day nonspecific therapy may be divided into general and special measures. General treatment comprises bed rest, diet, adequate ventilation, mental contentment, and the alleviation of symptoms as they arise. Special measures include pneumothorax, heliotherapy and other adjuncts to general therapy.

In both the general and the special treatment of tuberculosis, rest alone, in one form or another, has stood the test of time and has been responsible for all advances in the therapy of this disease. For convenience rest may be divided into general, postural and local.

Postural rest implies that the patient lie on the diseased or predominantly diseased side. This position lessens the likelihood of extension to the opposite lung and forces the nonrigid diaphragm into the thoracic cavity, thus affording some compression to the disease area. It is important, however, that cavities be drained often enough to prevent overflow of secretions.

During recent years local rest, or compression therapy, has been utilized to a much greater extent. To this we shall return later.

In the treatment of tuberculosis, oftener than in any other disease we must decide such questions as the amount and prolongation of bed rest. When in doubt it is well to bear in mind that it is safer to err in the direction of excess rest, that exercise does not heal tuberculosis, and that the advent of the roentgen ray showed that extensive active disease may be symptomless. Sanatoria, therefore, are using rest for all patients who have present or recent active disease.

In my opinion these questions of rest should be decided from, serial roentgen rays, clinical symptoms, serial blood work—particularly

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sedimentation tests,[2]* repeated sputum examinations and clinical judgment. I add clinical judgment because abnormal blood findings may be due to extrapulmonary causes. In any case assuming the absence of symptoms, a normal blood picture and negative sputum examinations, rest should be continued in the amount indicated until roentgen ray findings remain stationary over a period of four to six months.

While rest in one form or another is the basis of the treatment of tuberculosis, I also wish to refer to diet, ventilation, and mental contentment.

In the therapy of this disease many dietary formulae have been developed and advocated as having special value. Among these is the Gerson salt-free diet. As to the virtue of these formulae I agree with Fishberg[3] when he says, in substance, that most impartial observers state that they have no advantage over the usual diet prescribed for tuberculous patients. I feel, therefore, that a palatable, nutritious, balanced and adequate menu is suitable for the great majority of tuberculous cases. While the importance of vitamins is generally accepted, Smith's[16] work indicates that vitamin C reduces the incidence of tuberculous enteritis and aids in its treatment. In order to assure an adequate supply of vitamins a combination of tomato juice and cod liver oil may be used.

The importance of fresh air in the therapy of tuberculosis is generally accepted. These patients, therefore, should be treated on the veranda or in well ventilated rooms. I feel, however, that open air treatment has been overdone. It is well also to bear in mind that there are contraindications to the open veranda, particularly during inclement weather. Among these are senility and cachexia.

Much has been written on contentment of mind. In my experience most discontent is due to homesickness and is ordinarily overcome in a short time. However, when worry persists, irrespective of cause, recovery is retarded and whatever advantages climate may offer are reduced to a greater or lesser extent. I may add also that a change of environment, as from one sanatorium to another, is sometimes beneficial.

HOME TREATMENT

While home treatment is usually necessary at some period of this disease, the fact remains that the early treatment of any case should consider the advisability of compression therapy; and, preferably, also include some sanatorium training. These needs are best fulfilled in an institution where the case can be studied and a conclusion reached as to the desirability of home treatment. Therefore I do not favor keeping the patient at home and depending upon a poor response to treatment to indicate the need of sanatorium care.

When home treatment is necessary detailed orders must be given as to rest hours and where rest is to be taken. In order to train his patients Pratt[4] organized a class in home treatment. This, he states, had both a curative and a preventive value.

My experience with home treatment leads me to feel that it presents disadvantages. The patient lacks the example of other patients, visiting and rest hours are often poorly regulated and usually no one is present who can or will intelligently direct the patient in following his prescribed routine.

SPECIAL TREATMENT

Heliotheraphy.—Depending upon its source heliotherapy may be natural or artificial. For either, the chief indications are extrapulmonary diseases. Where active pulmonary tuberculosis exists I feel, as do Fishberg[5] and others, that general heliotherapy may aggravate the disease. While we ordinarily do not know the condition of our patients prior to the use of this form of treatment, we see nevertheless an occasional case whose history and findings seem to verify this opinion. In one case we were afforded the opportunity of comparing chest findings before and after two months of general heliotherapy. His disease became much more active and extensive. (Case 1.)

Pneumothorax.—Depending upon its method of production we use the terms spontaneous and artificial pneumothorax. The former results from the accidental establishment of a communication between the bronchi and the intrapleural space and is usually due to tuberculous disease. However, a number of nontuberculous spontaneous pneumothoraces have been reported. (Case 2.)

Artificial pneumothorax does not arise accidentally. Instead, it is produced intentionally and for the purpose of compression and rest of the diseased lung. As a result cavities are closed, the involved area is reduced and fibrosis is hastened. Coryllos[6] thinks that cavities are obliterated by the obstruction of their bronchus, the remaining air absorbing and the cavity walls being drawn together. He also feels that the anoxemia which follows compression inhibits the growth of the tubercle bacillus and stimulates fibrosis.[6]

* Briefly the technic of the Cutler blood sedimentation tests is as follows: Use .1 c.c. 3 per cent sodium citrate and .9 c.c. of the patient's blood. Mix to prevent clotting. Read every 10 to 15 minutes for one hour and chart. Use Cutler sedimentation test tubes and Cutler chart.

Mariette[1] describes the mechanism of artificial pneumothorax very simply when he states that the contents of the lung are squeezed out in much the same manner as water is from a sponge. As a result there is a disappearance of symptoms.

These mechanical and physiological results of artificial pneumothorax make it a very important therapeutic procedure to both the individual and the community. It is often largely or entirely responsible for the patient's recovery. This is frequently true in hemorrhage cases and in others whose disease extends or shows little tendency to heal. Artificial pneumothorax also shortens sanatorium residence and returns the patient to earning power much earlier than bed rest alone.

From a community standpoint the value of this form of therapy results from a great reduction in open cases. Because of this it becomes practical to treat many pneumothorax patients in their homes. This program reduces the waiting list of the sanatorium and permits the admission of other patients before the extent of their disease precludes the use of artificial pneumothorax.

At this time there are in Missouri State Sanatorium a number of these patients who are unable to obtain pneumothorax treatments at or near their homes. For this reason there should be in each large community at least one physician who is both qualified and equipped to continue this form of therapy.

During recent years the importance of artificial pneumothorax has been more fully appreciated. Since 1929 the number of these cases treated in Missouri State Sanatorium has risen from 38 to more than 100; not including many who obtain their treatments elsewhere. In like manner the number of refills given during 1932 was 56 per cent greater than during 1931. This increase is due to the advantages which artificial pneumothorax offers to the patient and the community and to the realization that limited contralateral disease is not a contraindication.

Briefly, we may group the indications for this form of therapy as follows: First, predominantly unilateral involvement with cavitation or positive sputum; second, pulmonary hemorrhage, where origin is known; third, certain bilateral cases, with bilateral pneumothorax in mind; fourth, pleural effusion and fifth, massive atelectasis or massive fibrosis.

While the scope of this paper does not permit discussion of all of these indications, I wish to refer particularly to pleural effusion and to massive atelectasis.

Before abandoning the compression that has been established by pleural effusion, due consideration should be given to the condition of the underlying lung. In such cases compression can usually be continued by aspiration and replacement with air. However, reestablishment is ordinarily impossible.

Where massive atelectasis exists it is also important to bear in mind that the associated cardiac and mediastinal displacements are not due to pleural adhesions. These anatomical changes result from obstruction of a bronchus, followed in turn by absorption of the remaining air and a consequent reduction in lung volume. This explanation of the production of massive atelectasis is supported by the work of Glenn[18] and others. These patients, therefore, should not be denied the benefit of artificial pneumothorax. In preparing himself for this type of therapy, I feel that the physician should observe several treatments and that his first few treatments should be given under capable supervision.

Other requirements are a fluoroscope, a pneumothorax apparatus and facilities for asepsis. The fluoroscope should be used before, and in some cases after, each treatment. As to the type of pneumothorax apparatus, much depends upon preference. However, simplicity is desirable and a sensitive manometer is essential. Obviously, precautions as to asepsis are to be observed.

Technic of Artificial Pneumothorax.—While time does not permit detailed discussion, I wish to stress a few points. Although all artificial pneumothorax therapy requires reasonable care, even greater precaution should be exercised with initial treatments. At that time complications are much more frequent. Injury of the visceral pleura should be avoided. With this end in mind a special pneumothorax needle should be used until these membranes are well separated; and also at any other time when difficulty is experienced in obtaining oscillations with the ordinary luer needle. Until wide negative oscillations are obtained no air should be introduced.

Except in hemorrhage cases, I feel that not more than 200 to 300 c.c. of air should be given as the initial treatment. After this insufflation it is best that the patient remain quiet for a short time. Then, where no contraindications exist, it is well to make a fluoroscopic examination to exclude spontaneous pneumothorax.

Refills may be given every second day at the beginning. Thereafter the interval is lengthened as indicated. The volume of air should be increased gradually and will depend upon the collapse, pressure, position of heart and mediastinum and an occasional roentgenogram.

Intrapleural pressure should be kept as nearly uniform as possible. Variable and high positive pressures increase the incidence of pleural effusion. In most cases, negative, atmospheric, or low positive pressures are preferable. In any case it is important to keep the visceral and parietal pleurae separated thereby preventing adhesions and the ultimate loss of part or all compression.

Obstacles to Artificial Pneumothorax.—It may be said safely that pleural adhesions are the greatest hindrance to this form of therapy. The degree to which they interfere depends upon their extent, type and location. Where very extensive there may be a complete symphysis of the pleural surfaces thus preventing the entrance of any air; or there may be just enough free pleurae to permit the production of a small and likely useless air pocket. In other cases most of the lung can be collapsed but leaving an of the lung can be collapsed leaving an apical cavity that will require some other form of compression. Another group of cases is made up of those with cavities held open by string or band adhesions. Some of these can be overcome by a gradual increase in pressure while others may be suitable for cautery.

Complications of Artificial Pneumothorax.—The most common of these is pleural effusion. Less frequent complications are spontaneous pneumothorax, pleural shock, air embolism and subcutaneous emphysema.

According to many writers[7] pleural effusions are seen at some time in 50 to 70 per cent of all cases of artificial pneumothorax. The frequency of this complication is the result of our inability to eliminate the major causes, i. e., the irritant effect of air and the tearing of adhesions. However, the incidence of pleural effusion can be reduced by the avoidance of contributing factors; namely, variable and high positive pressures and extreme variation in the volume of air. Ordinarily pleural effusions are not troublesome and small or moderate amounts can usually be absorbed by maintaining so far as is possible a uniform pressure. However, because of pleural thickening and pulmonary fibrosis[8] large amounts of fluid should not be left for a long period of time. Such cases should be aspirated and the intrapleural pressure gradually raised, if necessary, to retain or increase compression.

Less Frequent Complications.—During or after initial treatments spontaneous pneumothorax may develop. Some think this complication is due to the rupture of emphysematous blebs[9] while others attribute it to puncture of the visceral pleura.[10]

Pleural shock is also seen occasionally during or following the first insufflation. It varies from mild with fainting, pallor and dizziness, to severe with loss of consciousness, rapid irregular pulse and shallow breathing. Keeping the patient quiet for a short time after the initial treatment reduces the incidence of pleural shock.

Air embolism as a complication of artificial pneumothorax has been uncommon since the advent of the manometer. As previously stated, its prevention necessitates the introduction of no air until we are sure the intrapleural space has been reached. High tension pneumothorax also contributes to air embolism.[11]

Subcutaneous emphysema also may be attributed to high pressure. Today it is seldom seen. Usually the air absorbs in a short time and does no harm.

Bilateral Artificial Pneumothorax.—While it is used very little, I feel there are cases in which bilateral artificial pneumothorax will result in recovery, improvement, or prolongation of life. In my opinion the principal indications for this type of therapy are: First, a satisfactory unilateral pneumothorax with progressive disease of the opposite lung; second, predominantly unilateral disease with contralateral involvement so extensive that unilateral compression is inadequate and, third, hemorrhage arising from the opposite lung. Although requiring closer observation, the technic of bilateral artificial pneumothorax is similar to that of the ordinary unilateral compression, the object being to maintain simultaneous partial collape of both lungs. Pollock and Marvin[12] state that of a series of 25 cases, 8 showed excellent results, 8 satisfactory, 7 unsatisfactory and 2 temporary improvement followed in a few months by death. The best result that I have seen was in a patient who had a satisfactory unilateral collapse and a short time later developed progressive disease of the opposite lung. He has now had a normal blood picture for several months and has been on exercise for some time. (Case 3.)

Duration of Artificial Pneumothorax.—All who utilize this form of therapy are confronted occasionally with the question of when reexpansion should be considered. There is much difference of opinion. Granting that artificial pneumothorax has accomplished its purpose, i. e., the closure and healing of cavities and the fibrosis of other diseased areas, these opinions vary from one year to permanent compression. While I realize the individual case must determine our decision, I feel that reexpansion can usually be considered after two or three years. Reexpansion, however, should be preceded by phrenic neurectomy. This aids in obliterating the remaining pleural space and re-

duces the strain on pulmonary scars and the mediastinum.[8]

Irrespective of our opinion as to duration of this type of treatment, I wish to stress the importance of proper medical supervision during reexpansion. Some think the patient should be in a normal environment and doing his usual work; others feel that he should be referred to a sanatorium during the period of reexpansion or convalescence.[8]

In my opinion these cases need supervision as much or even more than the toxic or sick patients. The convalescent feels well and often cannot be made to realize the importance of continuing treatment. In some cases economic reasons are also involved. Hawes[15] refers to convalescence as "the danger period of treatment."

Reestablishment of Artificial Pneumothorax.—Reestablishment is usually impossible, particularly after pleural effusions.[13] However, many cases of abandoned and reestablished artificial pneumothorax have been reported. Among these are Hutchinson's,[13] after 6 years and 3 months, and Mullen's[14] after 5 years and 4 months. My experience along this line has been both limited and unfavorable. Although only 2 months had elapsed I was unable to obtain a satisfactory collapse and negative sputum.

COMPLICATIONS OF PULMONARY TUBERCULOSIS

The most frequent of these are laryngitis and enteritis. Tuberculous laryngitis usually responds fairly readily to treatment but becomes a serious problem when it interferes with the intake of food. The treatment of this complication includes general and voice rest and in addition other measures. In many cases artificial or natural heliotherapy applied locally seems to be of value. For the relief of cough and the elimination of reinfection compression therapy should be given some thought. Where ulcerated areas persist the cautery is often useful. Dysphagia, which usually results from involvement of the epiglottis, presents a most distressing picture. Local applications may be tried and laryngeal nerve block resorted to when required.

Tuberculous enteritis is also fairly common. It is ordinarily a retarding factor and when severe may prevent recovery. As is true of laryngitis, the treatment of this condition necessitates general rest and the elimination of reinfection. For its general effect heliotherapy is considered beneficial. As stated previously, vitamin C seems to be of definite value. The outstanding symptoms, diarrhea and abdominal pain, may be relieved by the usual means.

REPORT OF CASES

Case 1. H. H., man, aged 22, seen in outpatient clinic of Missouri State Sanatorium August 24, 1931. Onset, October, 1930, with hemorrhage. His involvement (August 24, 1931) consisted of light mottling right upper lobe and a light to moderately dense mottling of the upper half of the left lung.

Again seen in Missouri State Sanatorium outpatient clinic November 8, 1931, and was improving. April 1, 1932, went to Texas and spent four months. While there received general heliotherapy for two months and began feeling worse. On October 15, 1932, reported at Missouri State Sanatorium for reexamination. Comparison of findings showed infiltration of both right and left lungs had become more dense and the disease in the left lung had also extended. In each lung there were areas of rarefaction that were absent previously. At present this young man is a patient in Missouri State Sanatorium and is responding poorly to treatment.

Case 2. G. O. G., white male, aged 25. Chief complaint pain and "rattling" right chest which patient thought due to a cold. Roentgenogram August 18, 1932, showed complete collapse of right lung; September 3, 1932, partial collapse; October 22, 1932, complete reexpansion.

Case 3. J. K. B., white male, aged 20. Onset June, 1931, with persistent cold. Entered Missouri State Sanatorium October 2, 1931. Infiltration left upper third with 5 centimeter cavity. Right negative. Left artificial pneumothorax started October 28, 1931. Cavity closed and sputum negative by November 28, 1931. Roentgenogram June 30, 1932, showed infiltration and area of rarefaction right mid lung. Sputum again positive July 6, 1932. Bilateral artificial pneumothorax started September 10, 1932. Last positive sputum November 10, 1932. Clinical course uniform, blood picture normal, sputum still negative. Feels well, is on exercise, and is not dyspneic.

CONCLUSION

The results obtained in the treatment of pulmonary tuberculosis are both immediate and remote. Reports of immediate results and even observation over a period of one to three years are obtained with relative ease. Every one who treats pulmonary tuberculosis witnesses the disappearance of toxemia and the control of hemorrhages with improvement that is often remarkable. However, statistics showing remote results are secured with great difficulty but when obtained are much more significant. This difficulty is due to the nature of pulmonary tuberculosis. It follows, therefore, that end results must be based on a follow-up system covering a period of years.

Missouri State Sanatorium.

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DISCUSSION

Dr. L. E. Wood, Kansas City: As Dr. Stokes suggested in his paper, the indications for pneumothorax are changing rather rapidly. The real value of pneumothorax has really not been appreciated because at the outset it was reserved for those patients and only those patients for whom everything else had been done. Of course there were enough of these patients who received marked benefit to encourage its use. Later it was thought the ideal case for pneumothorax was the patient who had strictly unilateral disease, but such cases were rarely found. We have come to appreciate now that pneumothorax if it is used to the best advantage should be used early, not wait until the disease has gone on long enough to extend into the opposite lung; although if there is moderate disease of the opposite lung it is not always a contraindication.

In regard to pleurisy with effusion I think all these patients should have the condition of the compressed lung thoroughly investigated before it is allowed completely to expand. If complete reexpansion is permitted far advanced disease is frequently found and you are unable to do anything about it because the visceral pleura has become adherent. I have recently seen two cases in which pleurisy with effusion was present. They were aspirated as completely as possible and sent home. They returned to the clinic a few months later for examination. The lung which had been compressed by the fluid was then for the first time found to be riddled with tuberculosis. It was then of course impossible to induce pneumothorax.

Dr. Stokes stated that the proper pressure during the course of pneumothorax was that of the atmosphere or slightly above. That is true in the ideal case. But when there are adhesions I see no harm in increasing the pressure to 10, 15 or even 20 cm. of water if the mediastinum is sufficiently stable to prevent marked displacement or mediastinal hernia. Sometimes by increasing the pressure you can close a cavity that is remaining slightly open, or you can compress the diseased lung more completely. Certainly if pneumothorax is indicated it should be complete or nearly so.

May I say a word about heliotherapy? I do not know why so many people think when they have a diagnosed tuberculosis they should immediately expose themselves to sunlight or ultraviolet ray. It certainly is a common experience to have patients come in with the skin as brown as it can be from exposure to some sort of ray. Certainly many of these patients have been harmed by that procedure. I am glad Dr. Stokes declared that heliotherapy should be reserved for extrapulmonary conditions.

DIAGNOSIS AND PROGNOSIS OF ADULT PULMONARY TUBERCULOSIS

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History.—In spite of the tremendous advances which have been made in laboratory methods of diagnosis, the old stand-by of our more ancient brother physicians still holds its place in the diagnosis of disease. I refer to a thorough history obtained from and about the patient. I fear that as a result of placing much emphasis on newer accomplishments many physicians are losing sight of our older aids. A study of parts or specimens of patients cannot in most diseases ever take the place of a thorough study of the patients themselves.

In dealing with pulmonary tuberculosis we deal with two types of people; on the one hand those who have symptoms and on the other people who do not have appreciable symptoms. In either case a history to determine whether or not there is or has been undue exposure to tuberculosis is of utmost importance. In individuals without symptoms this history should stimulate further investigation leading to diagnosis. Certainly all individuals with a considerable exposure to tuberculosis should be investigated further by physical examination, roentgen ray and other methods.

In individuals with symptoms it is evident that knowledge of whether or not the patient has been exposed helps determine the cause of the symptoms. A history of the occupation, former diseases, accidents and operations and the complaints of the patient must be painstakingly obtained. An adenitis might have been tuberculous, an inexplainable pleurisy with effusion or a spontaneous pneumothorax probably were tuberculous in origin. The same is true of hemoptysis not otherwise explained. Frequent chest colds should arouse suspicion. A history of tuberculosis elsewhere in the body as for example the bones, the peritoneum, the epididymis, etc., should always put one on his guard for pulmonary tuberculosis. In evaluating the history one must not forget that certain diseases, as pertussis and measles, seem to have a special tendency to activate tuberculosis. Any symptoms referable to the chest, as pain, dyspnea, cough and expectoration, hemoptysis,

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hoarseness or loss of voice, should always remind one emphatically of the possibility of pulmonary tuberculosis.

Certain evidences of a general toxemia as loss of weight, loss of strength, loss of appetite, indigestion, nervousness, fever, chills or chilly sensations and night sweats, frequently are important links in the diagnostic chains, but it must be remembered that they are at best only evidences of a focus of infection not necessarily of tuberculous origin.

One of the commonest reasons for failure in diagnosis is because the physician does not in his investigations have in mind the possibility of the disease which causes the trouble. A complete and well written history is a very important factor in suggesting to the physician the possibilities which he must consider, as well as helping him in the process of eliminating possibilities in arriving at a definite diagnosis.

Physical Examination.—I wish to emphasize that even though the symptoms are largely referable to a chest condition, a complete examination of the entire body must be made. Conditions observed in other parts of the body may point directly to a chest condition as, for example, emaciation, clubbing of fingers, curved nails and ischiorectal fistula should suggest possible tuberculosis of the lung. Furthermore, we must always remember that tuberculous patients are subject to the same nontuberculous afflictions seen in nontuberculous individuals and the coincidental presence of one of those may greatly affect and alter the diagnostic picture. A detailed discussion of the points in a careful physical examination of the chest is impossible in this brief paper. Let me briefly call attention to some important ones. The examination should consist of inspection, palpation, percussion and auscultation.

Inspection may reveal asymmetry of the chest, atrophy of certain muscles, retraction of interspaces, or bulging as in pleurisy with effusion. It may reveal asymmetrical expansion, the inspiratory effort on the affected side being inhibited.

Palpation may reveal muscle spasm or muscle atrophy over an affected area. Tactile fremitus may reveal underlying conditions in the chest as for example the increased tactile fremitus of consolidation or cavity, and the fremitus decrease in thickened pleura, pleural effusion, pneumothorax, etc.

The percussion note may vary in quality from absolute dullness on the one hand to marked hyperresonance on the other. The percussion note is impaired by consolidation in the lung, the amount of impairment being dependent upon the amount and location of the consolidation. If the consolidated area is covered with air containing lung the impairment is less; if lying directly under the percussing finger it is greater. Anything that may cause increased density must be kept in mind, such as pulmonary infiltration, cavities filled with secretion, enlarged glands, tumor masses, etc. One must not overlook the normal areas of impaired resonance caused by the heart, large vessels, liver and thick muscles. Thickened pleura or pleural effusion may be the cause of impaired resonance. In these conditions the tactile fremitus, vocal resonance and breath sounds are usually decreased whereas in pneumonic infiltration they are usually increased.

Of the methods of physical examination mentioned, auscultation is usually most valuable. In ausculting the breath sounds one must ascertain whether or not they are vesicular, bronchovesicular or bronchial with all of the modifications of bronchial breathing, as cavernous, tubular, amphoric, etc.

Vesicular breathing is of course the normal type of breathing. Bronchovesicular breathing excepting perhaps high up in the apices, especially the right, and near the trachea is abnormal and usually indicates a moderate degree of consolidation or infiltration. Bronchial breathing means more consolidation, cavities, or perhaps a displaced trachea since if one places his stethoscope over the trachea one hears a bronchial type of breathing. Occasionally encapsulated fluid under pressure transmits a bronchial type of breathing. Obviously, fluid or air in the chest cavity or a thickened pleura causes feeble or absent breath sounds, but one must not forget that, especially at the apices, feeble breath sounds may be the result of an early tuberculosis with its resultant infiltration, and obstructed bronchioli.

Rales are the most important physical findings in pulmonary tuberculosis. These are classed in general as fine, medium and coarse. Usually the earlier the infiltration the finer the rales. Medium and coarse rales indicate a considerable amount of exudate in the bronchioli, and coarse rales may indicate considerable softening and cavity formation. Persistent rales in the upper half of the lung are likely to be due to tuberculosis; if in the bases they are more likely to be due to some other cause, but we must remember that basal tuberculosis is by no means as rare as it was at one time thought to be.

Laboratory Methods.—Of the various laboratory methods those of most value probably are: Examination for tubercle bacilli; blood examination including hemoglobin determinations, total red and white counts, differential white counts and determination of the sedimen-

tation time for the red blood corpuscles; the tuberculin test, and the roentgen ray examination of the chest.

Sputum.—In every case of pulmonary tuberculosis there is a time or stage when there is not enough softening to liberate tubercle bacilli into a bronchus and consequently the sputum examination will be negative for tubercle bacilli. The absence of tubercle bacilli cannot be taken to rule out tuberculosis; however, if they are absent by all the tests possible and all other findings indicate the lesion is one that should produce them, one must look for a lesion that is not tuberculous. When tubercle bacilli are known to come from the lesion one knows he is dealing with a tuberculous lesion. A positive sputum makes the diagnosis. Just the ordinary microscopic examination of a sputum proves nothing unless it is positive. Before giving up the search one must examine many sputa by some concentration method; and if still negative, by guinea pig inoculation or culture methods.

Blood.—The red count and the hemoglobin determination must be made in order to determine whether or not there is anemia and of what degree and also for other conditions which the red cell examination may detect. It is my opinion that, especially in hospital cases as we see them, the degree of anemia usually attributed to tuberculosis by the older writers is not in evidence. Of course, tuberculous patients as a whole are better nourished today than they were wont to be not so many years ago.

The total white count often shows little or no increase, but in very acute cases or cases with cavities secondarily infected not infrequently it reaches 12,000 to 15,000.

The differential white count usually tells us whether or not there is an infection, the nature of which must be determined by other methods. A high percentage of neutrophiles with a shift toward the young forms together with a low percentage of lymphocytes indicates an infection, and such is usually the picture in acute tuberculosis. We shall consider this further under "Prognosis."

The sedimentation rate of the red corpuscles is used by many phthisiologists to help them determine the degree of activity. The more active the infection the shorter the sedimentation time as compared with a given normal. Of course, one must know from other observations whether or not the infection is of a tuberculous nature. This test probably reveals nothing that is not revealed by careful Schilling blood counts.

Tuberculin Test.—The tuberculin test is of more value in children than in adults. However, some workers[1, 3] consider it very valuable in conjunction with the Schilling differential blood count in adults. If a certain maximum dose of tuberculin does not change the blood picture the case is considered nontuberculous or nonactive. Where there is a definite shift to the left in the neutrophiles and a definite drop in lymphocytes as a result of the administration of the tuberculin, the case is considered one of at least unhealed tuberculosis if not one that is definitely active.

We hope to be able in the near future to publish our "Follow-Up" observations on cases that have been given tuberculin in conjunction with Schilling counts during the last four or five years.

Roentgen Ray Examinations.—Within the last decade the use of the roentgen ray has been developed to such an extent that a chest examination can no longer be considered complete without applying this diagnostic aid. There are many precautions that must be kept in mind to avoid injustice to the patient; but properly used it is one of our most important single aids.

It is dangerous to place too much confidence in a single film because a single graph cannot tell the exact amount of activity; in fact, in very many instances it will not differentiate between activity and nonactivity. Considerable can be guessed from the nature of the densities, whether or not they are hard and of a fibrous nature, or soft and of an exudative character, but if we allow a roentgenologist to make our diagnosis independent of history and other findings many patients will suffer because of our imperfections.

It is very important that the technic be such as to give a good clear contrast between the different densities; if a film does not do this one should discard it for a better one. If this cannot be done then one must maintain great reservations on whatever he thinks the film shows. When it is possible to compare a series of films taken at intervals, provided the technic has been similar enough so the films are truly comparable, one has evidence that can hardly be refuted. In some cases by this method the roentgen ray may make the diagnosis single-handed. Whenever comparable serial roentgenograms taken over a period of time show a lesion to be spreading, the lesion must be considered active in spite of the absence of symptoms. When such comparable roentgenograms show that the infiltrations are still being absorbed the lesion must be considered still active or at best as having been so recently active that it is unsafe to consider it as inactive.

In interpreting the roentgen ray one must also

remember that lesions in the upper half of the lung are probably due to tuberculosis and lower half lesions are more frequently nontuberculous.

Prognosis.—In such a disease as pulmonary tuberculosis prognosis is very intimately tied up with diagnosis. In many instances diagnosis resolves itself into a determination of whether or not there is activity or, as is more frequently the case, a determination of the degree or amount of activity. At this point diagnosis also becomes prognosis. Unfortunately, it is as yet impossible to draw a definite line between activity and complete inactivity in this disease. The same procedures used in diagnosis must be brought to our aid in determining the prognosis.

From the history we are often able to obtain some idea of the length of time the disease has existed and this considered with the extent of the disease as determined by physical and roentgenological examinations gives us some idea of the patient's resistance as compared with the virulence of the infecting organism. Other things being equal, a near balance or an imbalance in favor of the patient's resistance gives a better prognosis. The extent of the lesion is an important consideration in prognosis but must always be considered with other observations. Taken in a group one can state that most cases of minimal pulmonary tuberculosis will recover, probably about half of the moderately advanced cases will make a satisfactory recovery, and perhaps a fourth of the far advanced will recover, with proper care. But, to the patient, the question is, "What are my chances?" not, "What are *our* chances?" He has a chance for one of two definite possibilities that concern him. Either he is to be among the group that succumb, or in the group that get well. It may be very gratifying to him to know that 75 per cent of his class get well, but he is much more interested in knowing whether he will comprise a part of the 75 per cent or be one of the unfortunate 25 per cent.

Open cavities and positive sputa add greatly to the hazard and the great majority of individuals who still have these after a thorough attempt at eliminating them will die prematurely from the disease. The length of time during which the individual has held his disease in check is important. Other things being equal, the longer the disease has been under control the better is the outlook. One must determine from careful physical examinations, roentgen examinations, blood and sputum examinations, and the patient's symptoms, whether or not the disease is held in check. Do not forget that the disease may be advancing though the patient be practically symptom free.

The sincerity with which the patient applies himself to taking the "cure" is very important. Some simply will not make the sacrifices and of course will not recover. Others through sincere and conscientious observance of their limitations will cure a very extensive lesion.

In the count of the white corpuscles especially the differential count, we have an excellent means of estimating the patient's resistance to his disease.

It is generally accepted that a high lymphocytic percentage is favorable. If one is convinced that the blood picture is not influenced by nontuberculous conditions it may be taken as a very reliable indicator of the patient's resistance against his infection. In very actively progressing tuberculosis the mononuclear percentage is generally high but it may also be high later when the patient appears to have good resistance. An increase in the percentage of eosinophils is frequently associated with good resistance but one must bear in mind other causes of eosinophilia, as parasitic infections or allergic manifestations. An increase of the younger neutrophils or the shift to the left in the neutrophilic picture as described by Arneth and Schilling is indicative of active infection.

Frequently the administration of tuberculin in doses of 10 mg. or less will produce temporarily an unfavorable blood picture in an individual whose previous blood picture has been very favorable. This result of the tuberculin administration is taken by some men to mean at least unhealed tuberculosis. In such cases the blood picture soon returns to what it was before the administration of the tuberculin. It must be emphasized that the blood work must be done by a competent technician or the physician himself and instead of judging a patient's status by a single count, a composite picture of several counts should be considered.

Although we must be very careful of the importance we attach to the tuberculin reaction in adults, I think we may assume that in the great majority of cases when there is no reaction except a local reaction at the site of injection, from the subcutaneous injection of 10 mg. of Koch's Old Tuberculin, the tuberculosis, if the patient has it at all, is inactive.[2]

Many phthisiologists today consider the determination of the sedimentation rate of the red corpuscles a valuable aid in appraising the state of quiescence or activity of the patient's tuberculosis. While we agree that it is a valuable aid, we feel that all information obtained from it can be also obtained by careful blood counts.

Bredeck[3] has suggested the following classification for activity based largely on the blood picture, with the tuberculin test:

CLASSIFICATION

Active Tuberculosis.—A patient who has a degenerative neutrophilic shift to the left with the Schilling blood differential, due to tuberculous infection, with a further shift to the left of the neutrophilic leukocytes or a drop in the lymphocytes following 10 mg. or less of Old Tuberculin.

Potentially Active Tuberculosis.—A patient who has a normal or a degenerative neutrophilic shift in the Schilling differential of doubtful origin, and who has an increased degenerative neutrophilic shift or a drop in lymphocytes following 10 mg. or less of Old Tuberculin. This is associated with a general tuberculin reaction with fever.

Apparently Healed.—A patient who has a normal or a degenerative neutrophilic shift in the Schilling blood differential, of doubtful origin, and who has an increased degenerative neutrophilic shift or a drop in lymphocytes following 10 mg. or less of Old Tuberculin, not associated with a general tuberculin reaction with fever.

Healed Tuberculosis.—A patient who has a normal or degenerative neutrophilic shift to the left in the Schilling blood differential of doubtful origin, and who fails to get any change in the Schilling blood differential following 10 mg. of Old Tuberculin.

It will be necessary for further observers to corroborate Bredeck's work but if this classification is as reliable as his painstaking work would indicate, a truly great advance has been made in the prognosis and diagnosis of active tuberculosis.

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DISCUSSION

Dr. H. L. Mantz, Kansas City: Two or three points I would like to emphasize.

On diagnosis, I think we all agree that our old idea of tuberculosis always developing insidiously is not always correct. Many of these early cases must be found by searching through families where you have made a positive diagnosis of one case. Having found that case you will probably find others if you will look for them, and many of the small proliferative lesions may be detected only by routine examination. Drs. Opie and McPhedran have recently published a paper showing that marital tuberculosis is much more common than former investigations have revealed. I am not quite ready to accept their figures because their percentages seem rather high and so far I have not been able to confirm them among the people I have examined. However, they are very careful workers and whatever they say must not be disregarded without careful consideration.

Having diagnosed the case one comes to prognosis. We find in our clinic many cases sent in diagnosed and their physician has told them they would be well with three to six months' rest in bed. I think it is a great mistake to tell any patient that after a certain length of time he will be well. In most of the cases when that time has elapsed the patients find they are not well and the disappointment is very detrimental to their ultimate recovery. I think our prognosis should always be guarded. We are dealing with an infection and the only thing is to tell the patient we have no idea how fast nor how slow it will progress. The laboratory tests that we have now developed are a distinct advance over former methods but after all they are only laboratory tests. We must not give any prognosis until we have observed carefully the clinical progress of the patient for a period of several months.

Dr. Sam H. Snider, Kansas City: I would like to stress one point and that is the roentgen ray in diagnosis. There is no single measure so valuable in discovering a tuberculous infection as the routine roentgen ray examination. We may be able to do something by the blood count and the sedimentation test, to discover whether the patient is suffering from a wasting condition, but the beneficial thing in diagnosis is the roentgen ray plate, judiciously and carefully made. You may use a poor plate, you may make an error, but that plate will nearly always show you if the disease is present. If the disease is not discoverable with the roentgen ray it is usually not serious, although it may become so in a little while.

Tuberculosis is not always insidious in onset. A patient may have an enlarged gland in the hilum of his lung that ruptures into the bronchus and overnight develop a massive atelectasis. And whereas last week he had the juvenile type, next week he may have pulmonary tuberculosis with possible cavitation.

TUBERCULOSIS OF BONES AND JOINTS

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It is extremely interesting to find a condition of as great antiquity as tuberculosis still being actively discussed today. Just when the Bacillus tuberculosis began to prey upon living organisms we do not know but fossil remains, which are being investigated with ever increasing industry by the paleopathologists, reveal destructive bone lesions as far back as 500,000 years B. C., some of which may have been of tuberculous origin. Certainly we know that the mummy of a priest of Ammon of the XXI Dynasty (1100 B. C.) studied by Ruffer, contained a large psoas abscess due to tuberculosis of the upper lumbar spine. Tuberculosis of the bones and joints then has been with us since that time at least. That such an old problem is still an active one indicates that we have not as yet completely solved it, else the need for discussion would be gone. Yet it is generally felt today that we have the means of curing tuberculosis of the various tissues affected by this disease if an early diagnosis is made and the proper treatment is instituted early in its course. The reason then for discussion must lie in a conviction that the criteria necessary for

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early diagnosis must be more generally known and the proper form of treatment more commonly carried out than has been the case up to the present time if we are to combat this disease successfully. With this thought in mind I purpose to discuss tuberculous bone and joint disease rather generally from the point of view of early diagnosis and treatment.

Etiology.—Tuberculosis of the bones and joints is always secondary to active though often long established disease elsewhere and in children almost always to disease of the lymphatic glands. Whenever and so long as an individual is suffering from active lymphatic tuberculous disease the presence of tubercle bacilli in the blood stream is of frequent occurrence. The commencement of a tuberculous focus in or near a joint is due to tubercle bacilli in the blood stream settling in an area devitalized by an injury or settling in such large numbers that they can survive without any preliminary devitalization. Trauma as a contributing factor so becomes important. Etiologically then tuberculosis of a joint must be considered to be a local manifestation of a constitutional disease. This conception of joint tuberculosis has an important relation to treatment as we shall see later.

The pathways for infection of the individual are through the respiratory tract and alimentary system; the former is probably the more usual route in adults, the latter in children. Heredity probably plays an indirect role by handing down to the offspring a lessened resistance to the disease. General causes such as undernourishment, unsanitary living conditions and infectious diseases become important through lowering of general resistance to infection.

Pathology.—Time will not permit nor does it seem necessary to go into a discussion of the pathology of tuberculous bone and joint disease except to call to your attention the tissues which are or may be attacked. This is advisable inasmuch as it has a direct bearing on treatment.

Tuberculosis infecting a joint may involve (1) the synovia, or (2) the bone on one or both sides of the epiphyseal cartilage. It has been contended from time to time that true synovial tuberculosis does not exist; however today it is generally admitted that synovial tuberculosis is a definite disease entity in children. Souttar of Boston reported 9 such in 45 cases of tuberculous disease of the knee joint. I myself have seen but 3 cases of pure synovial tuberculosis in 153 cases. In light of our present knowledge however it must be admitted that the majority of tuberculous joints when seen show involvement of the bone with secondary extension into the joint. Certainly in adults synovial tuberculosis as such is rarely encountered. Probably if all cases were diagnosed early the percentage of synovial tuberculosis in comparison with bone tuberculosis would be higher than statistics show.

Symptoms.—The history of an insidious onset with interference with function and some swelling in a joint is important. In the early stages of the disease pain and tenderness are not complained of and the chief symptoms are some interference with the full range of motion and a swollen, warm joint rather than a painful one.

The general signs of toxemia are usually found if sought for; the most important of these perhaps is subnormal morning temperature with an evening temperature rise to 99°. A high range of temperature suggests some other form of infection. Some loss of weight, decrease of endurance and impairment of the general health are other indications of toxemia.

Muscle atrophy and flexion deformity due to protective muscle spasm are significant but must be classed among the later symptoms of the disease which should have been diagnosed or suspected before they appear.

The roentgen ray evidence is at times very helpful and at others of little aid. Positive evidence is of great importance; negative by no means excludes tuberculosis. The points which indicate tuberculous infection in a radiogram are: (1) Uniform thinning of the cortex of the bone; (2) destruction or thinning of the articular cartilage; (3) decalcification of the bone ends which in the film gives an appearance that has been described "as though a poor picture had been made"; (4) lack of new bone formation such as is seen in pyogenic bone infections; (5) presence of a bone focus, usually in the epiphysis; (6) failure of extension of the disease process along the shaft of the bone but rather a tendency to involve the neighboring joint.

Abscess formation and the presence of sinuses should be included among the symptoms but these are late developments which should not be permitted to take place.

Diagnosis.—Early diagnosis is of paramount importance if a satisfactory outcome is to be obtained. Unfortunately, in the early stages of synovial tuberculosis a positive diagnosis is frequently impossible and Girdlestone has wisely suggested that when in doubt a provisional diagnosis of tuberculosis should be made and revised later if necessary. He contends, and justly so, that far less harm is done by treating a nontuberculous joint as a tuberculous one for a period of time than will result if a tuberculous joint is treated expectantly and

progressive destruction allowed to go on, ending probably in permanent impairment. A provisional diagnosis of tuberculosis then should be made in children when we have locally in a joint gradually increasing interference with function accompanied by swelling, heat and slight pain and when added to these local symptoms a general examination reveals signs of a mild toxemia, particularly slight evening rise of temperature. A provisional diagnosis should be made with such findings even if the radiograms are negative since we may be dealing with a synovial tuberculosis without bone changes. A provisional diagnosis having been arrived at every effort must then be made to make the diagnosis positive one way or the other by a careful study of the child from every angle. The von Pirquet and Mantoux tests should be made; if they are positive they are not of much help; if negative they tell us that the patient is free from tuberculosis and indicate some other form of infection. Injection of aspirated fluid into guinea pigs is sometimes helpful but as a rule in the early stages of this infection the fluid aspirated is sterile and consequently no information is gained.

Of recent years there has been a definite tendency to demand a diagnostic arthrotomy and a laboratory diagnosis in doubtful cases. This procedure is not without danger of extension of the process through the incision scar and the establishment of a tuberculous sinus tract. Probably the soundest position to take with reference to arthrotomy is that it should not be done on doubtful cases but reserved for those in which it will be quickly followed by operative fusion, the biopsy being made in order that the diagnosis may be definitely established before the individual is subjected to a destructive surgical procedure.

The diagnosis of the early case of synovial tuberculosis must frequently be made on clinical evidence alone and in spite of negative roentgenological, tuberculin and guinea pig evidence. The diagnosis in the adult and in children with bone involvement presents few difficulties; it is typical in its symptoms, is always supported by roentgenological evidence and can always be proved by biopsy if necessary.

The chief condition which must be differentiated from early tuberculous joint disease is the mild toxic arthritis due to infected pharynx or intestinal disorders. As a rule, however, such an arthritis is very transient and rapidly clears up on rest and correction of the focal infection. Perthes' disease is another condition often confused with tuberculosis of the hip but the radiograms rapidly clear up the diagnosis.

Prognosis.—The prognosis in tuberculous joint diseases is good provided an early diagnosis is made and adequate treatment instituted and persisted in until the disease both local and general is completely under control. The prognosis with late diagnosis and inefficient treatment permitting extensive joint and bone destruction, the development of a tuberculous abscess and the formation of discharging sinuses is extremely gloomy, both as to permanent deformity in the joint and the eventual outcome. The time factor then may be said to determine the prognosis in bone and joint tuberculosis very largely.

Treatment.—Since bone and joint tuberculosis is a constitutional disease with local manifestations it is evident that its adequate management must include (1) general treatment, (2) local treatment.

General treatment is of paramount importance since the cure of a tuberculous joint infection necessarily includes building up the general resistance sufficiently to take care of the original source of the disease. All the tubercle bacilli in the body must be killed or encapsulated if we are to prevent recurring tuberculous bacillemia which can occur with a cured local focus in a joint unless the original focus elsewhere has been rendered inert and harmless. It is imperative that the necessity of careful general treatment be appreciated and that it be recognized that such general treatment is essential not only during the activity of the local joint infection but long after the local condition has been eliminated. The parent source of the local disease is often deep-seated, silent and too readily forgotten with the disappearance of local symptoms.

It seems unnecessary to discuss in detail the general treatment indicated. It should be sufficient to state that it is identical with that used in the treatment of lung tuberculosis and includes rest so long as temperature is present, building up of the general resistance with proper diet, heliotherapy rigidly carried out and the removal of all focal infections such as infected tonsils, etc.

The local treatment indicated depends upon the type of joint infection we are called upon to care for. An entirely different point of view must be taken toward an early synovial tuberculosis in a child from that held toward a destructive bone and joint involvement in a neglected case in a child or toward tuberculosis in the adult. Local treatment must then be discussed under two headings: (1) The treatment of synovial tuberculosis without bone involvement in children; (2) the treatment of joint tuberculosis with bone involvement in children and adults.

Treatment of Synovial Tuberculosis.—Given a synovial tuberculosis without bone involvement the treatment should be conservative but definite since in this type cure with joint motion is possible in a fair percentage of cases. Complete immobilization is the keynote of such conservative treatment. So long as the joint is sensitive and warm the immobilization should be by plaster cast so applied as to immobilize the involved joint completely or rigid traction, depending on the joint involved. Such complete immobilization may be necessary for from one to two years. When the joint has become cool and the swelling and sensitiveness disappear a protecting brace may be substituted for the plaster cast. Such a protective brace must be worn constantly for from two to three years and then gradually be discarded. Such a conservative course may be followed in children so long as there is continued improvement, indicated by failure of acute symptoms to recur. If however during the course of this conservative treatment any serious recurrence of acute symptoms takes place conservative treatment should be abandoned and so-called radical treatment be resorted to unless the child is under six years of age when protective measures must be continued until the child is old enough for surgical interference.

Treatment of Joint Tuberculosis When There Is Bone and Joint Destruction in Children and Adults.—When we are dealing with a lesion in which we have bone and joint destruction whether in a child or an adult conservative measures should be used only as long as is necessary to quiet the infected joint so that it may be safely fused by operation. No tuberculous joint of this type can be expected to heal with motion even in a child and most certainly not in the adult. On the other hand, elimination of all motion by ankylosis offers the only means of curing the disease that we know of and this should be done early. Conservative treatment under such conditions is not only scientifically unsound but economically wasteful since it consumes months and years in attempting to accomplish the impossible.

Operative fusion is contraindicated in the very young and the very old. Different opinions are held as to the age at which fusion should be done in children; some believe that a joint should not be fused under the age of from ten to fourteen years; others hold that it may be done as early as six years without harmful effects upon growth. In our clinic we fuse joints after the age of six and in tuberculosis of the spine as early as three years and feel it is quite safe; of course, the older the child the better. In adults, a fusion may be done up to the age of fifty and even beyond this age in those in good physical condition.

The operative fusion of a tuberculous joint includes the removal of all accessible infected tissues and the production of a bony ankylosis in the joint by the careful eradication of all articular cartilage and firm approximation of the denuded bone ends. To be successful the operation must be complete and the subsequent immobilization rigidly maintained until firm ankylosis has taken place; usually this requires from four to six months.

The treatment of tuberculous abscess demands mention. A tuberculous abscess should never be drained; it may be evacuated. Evacuation may be carried out by aspiration or by incision; if the latter is used the incision should be carefully closed up layer by layer as soon as the abscess has been emptied; a drainage tube should never be put in a tuberculous abscess; to do so means secondary infection and usually signs the patient's death warrant.

Tuberculous sinuses heal only when the focus is eliminated or quiescent and the only treatment for a tuberculous sinus is healing of the parent focus. The presence of an infected tuberculous sinus is a contraindication to operation on a tuberculous joint but a sterile sinus is not.

In our clinic we have had a total of 153 cases of bone and joint tuberculosis which have been under observation for a sufficient length of time for a diagnosis to be made and to enable a reasonable conclusion to be drawn as to the outcome. The distribution of these 153 cases follows: Spine, 59; hip, 41; knee, 24; ankle, 11; wrist, 9; sacroiliac, 6; shoulder, 2; elbow, 1.

In this series there have been 4 deaths, a mortality of 2.6 per cent. Fusion was performed in 52 cases, or 33.9 per cent. Of these 49, or 94 per cent, were successful; 2, or 3.8 per cent, were failures and in 1 case the result is not known but is believed to have been a success. There were 2 amputations, both of them for tuberculosis of the ankle joint. One of the cases of synovial tuberculosis was treated conservatively with cure with joint motion; this was a case of tuberculosis of the knee; the other two cases are still under observation.

CONCLUSIONS

1. Tuberculous bone and joint disease must be diagnosed early and adequate treatment persistently carried out if recovery is to be the end result.

2. In case of doubt a provisional diagnosis of tuberculosis should be made and the appropriate treatment instituted. If later the diagnosis must be revised no harm has been

done and the safest course has been followed.

3. There are two end results in tuberculous joint disease, i. e., free motion of bony ankylosis. The former outcome can be secured in a certain percentage of cases of synovial tuberculosis in children by conservative treatment; the latter can be secured only by an adequate fusion operation.

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DISCUSSION

Dr. James R. Elliott, Kansas City: Discussions often take the form of disagreement in whole or in part with the essayist. By that standard I cannot present an interesting discussion as I am in almost complete agreement with Doctor Dickson in all major points presented.

Like cancer, the successful treatment of tuberculous joints depends on early diagnosis and immediate institution of a definite, uncompromising program. If the patient or parents detect doubt on the part of the physician the treatment outlined will either not be followed or will be carried out in a dilatory manner.

All diagnoses must be preceded by a suspicion as to the type of disease to be dealt with. This is not necessarily a function of the specialist but rather one of the doctor to whom people go with their ills, major, minor and imagined.

In older texts the symptoms given for Pott's disease are, roughly, a rigid kyphos with or without draining sinuses; for hip disease, a bony ankylosis of the hip in extreme flexion and adduction. Such diagnoses are not worth much from the patient's point of view. They may well be likened to postmortem findings as concerns the well-being of the patient from whose body the organs were taken.

Writers of a few years ago laid down many definite rules of diagnosis which we now take for what they are worth. H. Sundt said in regard to roentgen ray findings: "There exists no roentgen picture that can be said to be entirely typical of tuberculous joint disease at any stage." Dr. Dickson spoke of a roentgenogram which has "the appearance as though a poor picture had been made." When such is the case it is well to have another film made with the involved joint and its normal fellow on the same plate. This will serve as a control and clear up the point as to the haziness of the picture.

I am inclined to use guinea pig injection in all suspected cases of tuberculous joint disease. True, a negative report is of no value but that is no reason for not having laboratory support of positive findings when it can be obtained.

Arthrotomy for biopsy, as so strongly urged by Hibbs, seems too heroic to me. I have never used it. I am, however, fully aware of the gravity of ankylosing surgery and the injustice of using it on cases in which the infective organism is other than Koch's bacillus.

The greatest incidence of tuberculous joint disease is about the fourth and fifth years. The age curve drops in either direction from this point. The primary focus in children that come to autopsy is largely in the intestinal lymph glands, which bespeaks a food infection, usually of course milk. Dr. Schauffler reports that the percentage of orthopedic beds at Mercy Hospital occupied by tuberculous bone and joint disease is less than in former years, but only slightly so, but that the source of these cases had changed greatly more coming from rural districts and decidedly fewer from urban sources where milk and dairy inspection is gaining in efficiency.

It cannot be said the problem is solved. There is much yet to be desired both in prevention and treatment. The medical profession in general should bear heavily the responsibility of disseminating the gospel of prevention and of early diagnosis.

I wish to thank Dr. Dickson for his excellent presentation and the Program Committee for giving me this opportunity of discussing it.

MANAGEMENT OF THE TOXIC GOITER PATIENT VIEWED IN A NEW LIGHT

WILLARD BARTLETT, M.D.

ST. LOUIS

I have arrived at a point of view of thyrotoxicosis that seems likely to be as satisfactory in determining the management of patients as any plan can be until new facts of fundamental importance as to the nature of the disease are forthcoming. I come to this viewpoint by answering to my own satisfaction these two questions: (1) What kind of individual becomes thyrotoxic? (2) What is the spontaneous course of the disease?

With very rare exceptions the patients in my experience who have developed a toxic goiter at whatever age of life give a characteristic history of their entire previous life. They have been somewhat nervous from childhood, have always cried easily or have been very quick tempered and have gone at all their missions in life, whether housework or business, at full speed. They have "felt good" only when actively at whatever task they had and, typically, have never been able to take life at a moderate pace with intervals of relaxation. Another important indication of what kind of individuals they are comes to one who regularly meets the parents, brothers, sisters and children of these patients. That the last come honestly by their emotional instability is striking; they are in truth their parents' own children.

Two lessons of great practical importance can be drawn from these observations. First, these symptoms, existing long before thyrotoxicosis is established, are common also among persons who have not developed a goiter, toxic or otherwise, and who go through life without doing so. To diverge a moment, they may develop choking sensation, palpitation, a smothering sensation, precordial pain, etc., under sufficient stress and it then becomes of importance, particularly if they have a goiter, to differen-

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tiate them clearly from thyrotoxic patients. Removal of a nontoxic goiter from an individual with a mild anxiety state usually makes him feel worse. The second lesson is, not that thyrotoxicosis makes the patient nervous but that it aggravates his normal characteristics. This has a further bearing on what can be expected subjectively after restoration to health. We therefore tell our thyrotoxic patients when they are first examined that we can restore them to the health they enjoyed before the goiter became toxic, but that no one can change them into persons different from what nature has made them. We make the mental reservation that if they have never in the past had good judgment about their health it is most unlikely that they will develop it in the future. On this last point particularly our remote after-treatment is predicated.

We have next to answer the question, What is the spontaneous course of thyrotoxicosis? It should be banal to say that it is characterized by remissions and relapses the duration of which is unpredictable with certainty in the individual case. I raise this point here only because of the recent flood of articles in the literature on roentgen ray treatment of thyrotoxicosis. Not a single paper which would stand critical inspection by any one with a pretense to considerable acquaintance with the disease has come to my attention. These papers fall into two groups, (1) those in which clinical evaluation has been made by a roentgenologist and (2) those in which results are reported by an internist after a period of a few months to a year. Yet we are talking of patients who often present a lifetime problem and of a disease in which we do not use the word "cure" but speak of rehabilitation and maintenance of health. I have recently seen a patient who was so desperately sick fifteen years ago that I did only bilateral ligation of the superior poles. During the course of the next year she gradually got into a remission and has apparently maintained her normal weight, strength and circulatory status ever since. She has always refused to permit a thyroidectomy though she has a good-sized goiter. What claims of therapeutic value for anything that was done for her, even the ligations, could not be made? And what guarantee is there that she will not again be thyrotoxic, or has not been so repeatedly in a minor degree at intervals when we have not seen her? Again, I recently took out a very large colloid goiter from an obese woman in her late fifties whose weight 25 years before had dropped from 195 to 120 pounds in four months with a classical history of thyrotoxicosis during that period. She had been two years in regaining her strength and weight but had maintained them ever since through five or six pregnancies and the other strenuous episodes that fall to the lot of a farmer's wife. Such cases are the uncommon ones of course yet they point a moral to one who takes his own histories in detail and who can follow a considerable percentage of his cases over many years because they live at not too remote distances.

Plummer found that the average interval elapsing from the onset of thyrotoxic symptoms until the patient entered the hospital (that is, after passing through one toxic phase, the succeeding remission and starting on the next relapse) was 14 months for a series of some 5000 cases. We have not tabulated our own cases in this respect but have the impression that this is a fair average for the duration of the first toxic phase and the succeeding remission. I have to rely on impressions again in saying that we see the majority of our thyrotoxic patients in their third or fourth relapse; unfortunately, they do not often come in for thyroidectomy when in a spontaneous remission.

We have learned more about the course of the disease and the part that we as surgeons should play in its treatment from a study of our goiter deaths over a five year period than from any other work of our own. A few of these figures may be enlightening. There were 37 deaths in the hospital among thyrotoxic patients from 1926 to 1930 inclusive. Of these, 14 patients, or 38 per cent, died before they could be got into condition where any part of a stage operation could be attempted. All the deaths were scattered fairly evenly through the decades from 21 to 70 years. Of those 14 patients who died without operation, 9 were under 50 years of age and death occurred in pure thyrotoxic crisis in 6 and in crisis complicated by a coexisting disease in 3; in the 5 patients over 50, pure thyrotoxic crisis occurred only once the other 4 deaths having an intercurrent infection or coexisting degenerative disease as a complicating factor. The duration of recognized goiter was over 8 years in 8 of the 10 cases where information was obtained and thyrotoxic symptoms had been recognized for from one to three years in 7 of 11 cases in which this could be ascertained. One might sum up this group of patients who came to us in their last relapse by saying that their average age was 46 years (whereas the average age of all our thyrotoxic patients is 35 years), that the chance for complications contributing to death was overwhelmingly increased in the patients over 50, that the vast majority had known of a goiter for over 8 years and had been continuously thyrotoxic in their last relapse for over one year. Let me digress

to point out that all these patients had been under medical care at various times and that the responsibility for this clinical course is to be shared about equally between the medical attendants and the head of the household from which these patients came. All these patients of course had had iodine either from their physician or on their own initiative.

I am not going into the detailed consideration of the 23 deaths, 62 per cent of the mortality, occurring after operation except to say that death occurred in thyroid crisis in all cases but three, usually within 48 hours, and that crisis was induced by some such accident as hemorrhage or recurrent nerve injury in 4 cases. The 3 exceptions mentioned include one death from streptococcus septicemia 123 days after operation and 2 cases of cerebral embolism in young persons. All these patients were given what would ordinarily be regarded as careful and protracted preparatory treatment if one judged by the time element alone, as in the case of the patient who died in crisis 5 days after unilateral polar ligation having been in the hospital 23 days before operation. But to look only at the time interval completely misses the point that these patients would not have died when they did if we had not operated on them when we did; certainly the vast majority of them would have got into a further remission in which an operation could have been done safely. There is no greater fallacy in goiter surgery than the reasoning that leads one to say, "This patient has improved as much as she will (sic), *therefore* we should do something." The first half of this statement holds true only when the patient is in her last relapse; that it is in fact her last relapse is a subject only for prophecy.

We have summarized what we have learned from this mortality study in two phrases that are axiomatic with us: (1) A "fatalistic" viewpoint of the course of the disease dictates that patients who cannot pass the tests which indicate operability *at that time* are not fit subjects for operation; if no more remissions are "in the cards" they will only die the sooner if they are operated on, but they will inevitably die. (2) Any death occurring within 72 hours of operation means that we have blundered in our estimation of the patient's ability to withstand what we planned to do *at that time.*

Bearing in mind, then, (1) the type of individual who becomes thyrotoxic, (2) the spontaneous course of the disease, (3) the fatalistic point of view of those who come to us in what *may* be their last relapse and (4) the surgeon's direct responsibility for postoperative deaths, we can intelligently plot out our management of the thyrotoxic patient from the time we first see him. This subject naturally divides itself into 5 phases which are somewhat interchangeable in point of chronological order. They are, (1) estimation of the patient, (2) stabilization, (3) rehabilitation, (4) operation and (5) supervision.

Estimation of the patient is done according to 6 primary and 4 secondary criteria and we are thereby enabled to accomplish two things when the patient is first seen. First, we can "place" him in relation to his previous course of thyrotoxicosis and, second, we can predict with considerable accuracy what his future course in our hands will be and which plan of several is best suited to his needs. One could discuss the individual criteria that we employ indefinitely; some authorities, I know, do not agree with our conclusions as to absolute contraindications. I have listed the primary criteria as follows, and the extremes of functional derangement of any of these, as indicated, constitute an absolute contraindication to operation during its continuance. The primary criteria are: (1) Circulation; decompensation; (2) nutrition; rapid, continuing loss of weight (on observation); (3) central nervous system; acute thyrotoxic psychosis; (4) excretion; vomiting, diarrhea; (5) metabolism; rising (on observation), (6) duration of voluntary apnea; inability to hold the breath at least 15 seconds on expiration.

It is not a rule with us but it is our general experience that patients who come to us with any one of the absolute contraindications do not usually get into shape for direct attack on the gland (i. e., at least lobectomy) within a reasonable period of hospitalization, two weeks or thereabouts. The outstanding exception to this is the patient with cardiac decompensation only. The patient who has any of the other absolute contraindications or several of them is on the verge of crisis, and patients who have gone so far downhill in a relapse of thyrotoxicosis are not as we see them able to get back up the hill sufficiently to withstand even lobectomy in less than two or three months. We formerly ligated the superior poles on this group of patients as soon as they were stabilized and discharged them for from 3 to 6 months before doing thyroidectomy. Many of them in that time had improved only sufficiently for single lobectomies to be done. We no longer believe that ligation is of therapeutic value; hence these patients are now discharged as soon as they are sufficiently stabilized that crisis is no longer imminent and we find that within 3 to 6 months we can attack the gland directly.

In observing the lesser grades of functional derangement according to these primary criteria certain other predictions can be made almost

automatically. For instance, the loss of one third or more of the body weight ordinarily means that a stage operation will be necessary; in other words, that only a single lobectomy will be safe within a reasonable period of hospitalization. The decompensated patient rarely gets into shape for subtotal thyroidectomy and becomes good enough for even primary lobectomy at first hospitalization in only 50 per cent of our cases. The reasons for this may be seen when it is realized that in the 8 decompensated goiters among our last 200 admissions, the average basal metabolism on admission was plus 71, the average age 48 and the average duration of thyrotoxicosis 5 years.

Secondary criteria by which we estimate the patient are: Age, sex, race, and previous treatment. Of these, the first and the last are the most important. Patients requiring stage operations (separate lobectomies) are usually sent home between stages if they are over 50 years old; the two stages are usually done at the same hospital stay if the patient is under 50. Again, we are particularly insistent that remote observation be vigilant in the patients in their 'teens, for the incidence of recurrence in our experience is considerably higher in juvenile thyrotoxicosis. As a result of our observation that these girls (we have not seen a thyrotoxic boy for many years) are practically mature at 14 or 15 years so far as all the secondary sex characteristics are concerned, we no longer leave them a larger proportion of thyroid tissue than we would adults.

Stabilization only means the point at which the patient is no longer getting worse. We not infrequently have a patient come into the hospital, go on complete bed rest and iodine, eat heartily, sleep well and lose a pound a day for a week with a stationary or rising metabolism.

Operation deserves no further mention in this paper except the statement that it is quite variable in its chronological sequence in the 5 steps we have laid out for the management of the thyrotoxic patient. By insisting to ourselves on the application of the ten criteria outlined, with particular attention to the ability of the patient to hold his breath (according to the plan originally described before this Society by my son in 1930) we found that during our most recent 12 month mortality study the preoperative portion of the total mortality had changed from 38 to 84 per cent, and the postoperative portion from 62 to 16 per cent! We are clearly estimating the ability of the patient to withstand operation at any given time with much more accuracy than formerly.

Rehabilitation really covers the period from the time when the patient is first started on treatment until she is back to normal weight, strength, nervous control and circulatory status and is able to carry on comfortably with a reasonably full life. This varies in length with the duration of the illness and its severity before the patient comes to us. It is in this light that one sees why operation may be variable in the sequence, for patients will occasionally come to us in a full remission after having been desperately sick six months previously; they require no preliminary treatment and return to their usual tasks within two weeks of operation. Rehabilitation in them preceded operation. It is punctuated by stage operations where such are necessary and the largest part of it follows most subtotal thyroidectomies. These patients are told repeatedly that it is not an operation from which they must recover but a long standing disease, and that if they can get well in a shorter time than they took to get sick, they are lucky. Resistance to strain is the best measure of the rate at which rehabilitation proceeds and as they are allowed to pick up their ordinary tasks on an increasing scale, they are watched at intervals lest they take on more load than they are ready for.

Supervision is implied in the nature of the disease and the normal characteristics of those who get it. Thyrotoxic patients are observed at intervals of one to two months for one year after leaving the hospital. They are then instructed to return for check-up once a year thereafter. Since they are individuals of notoriously poor judgment concerning what is good for them, they stand a much better chance of avoiding stress beyond their capacity, beyond their limits of nervous stability, if they can be induced to regard such a check-up as insurance of the highest order. Their manner of life can then be regularly ascertained and the physician fills somewhat the role of policeman, which is precisely what the patient needs most. Only in this way in the light of our present knowledge can recurrences be reduced to a minimum. Certainly the patient who never sees his surgeon or referring physician again after leaving the hospital with instructions to "take things easy for a while" is at a grave disadvantage. As long as he has once developed a toxic goiter under circumstances favorable to such a process, there is every reason to recognize the facts that too great stress of living may again call forth a pathological process in the remaining thyroid tissue and that the patient himself is not likely to be the type of person who will unaided adapt himself wisely to whatever excessive demands are made on him in order to live well within his

own somewhat restricted capacity. The wonder is that the rate of recurrences is not very high in the best of hands instead of the 3 or 4 per cent reported in careful studies covering periods of at least 5 years. Certainly, in my own experience, the two factors of excessive strain and poor judgment in adaptation to it characterize the histories of the patients who have developed recurrences following what I regarded as being a proper operation in my own hands. Typical of them is the case of a 16 year old girl who was kept out of school for three months after operation, then allowed to go only half a day for three more months, with a rest period daily, no exercise other than short walks, and getting to sleep by 9 p. m. every night but one during the week. The result was perfection itself objectively and subjectively for 9 months, but when she returned next in 5 months instead of in 1 month as ordered she was quite thyrotoxic again. She had decided to attend summer school during a blazingly hot St. Louis summer and had been getting up four or five times every night all through the summer to give injections of adrenalin to her mother, a severe asthmatic! Halfway through the summer she began to have a recurrence of the subjective symptoms that she recognized but it was two more months before she returned to me. Nor had she, even in the light of her previous treatment, cut down her activities or even resumed the use of iodine which she had given up without asking advice. Nor, again, had any member of her numerous family, among whom was an older sister whose toxic goiter I had removed, protested against her course or made any effort to interrupt it. Following her second operation she has stayed entirely free from thyrotoxic symptoms for 4 years through the inevitable stress of readjustment to the problems arising in the late 'teens, particularly during years of depression. But she still comes in every 3 months so that I can see how she is living. Whom else can I trust to guide her? She has gradually adopted an attitude toward life that gives me confidence in her increasing ability to steer her own course wisely, something that subtotal thyroidectomy repeated half a dozen times would not bring about.

There is a final point important to this discussion. It concerns the material that any one of us has to deal with in his own practice. This varies widely throughout those areas in the United States where goiter is endemic and where it is not. It varies in any particular district according to the social and economic status of the patients making up the bulk of one's practice, the percentages of cases coming from consultants, the familiarity of the individual consultants with the course of the disease and the percentage of patients coming from a considerable distance. In relation to all these factors the seriousness of the majority of the goiter patients coming to the surgeon will vary, and his views of methods of preparation, anesthetics, details of operative technic, postoperative care both immediate and remote and his philosophy of goiter, if one may term it that, will develop primarily from that experience. Discussions of goiter general and particular should be interpreted in that light. The author who writes that he never drains the neck after thyroidectomy is obviously not dealing with many patients who are severely thyrotoxic when he first sees them, nor is the surgeon who rarely does a two stage operation, if each is keeping his operative mortality well under 1 per cent. In previous years when there was still a general impression that ligation of the upper poles accomplished a therapeutic effect, we greatly envied those surgeons who found that after the popularization of Lugol's solution they rarely felt called upon to do ligations. We felt rather miserable about doing them, followed by separate lobectomies at later hospital stays in a considerable proportion of our patients, adding scar after scar to the neck of the unhappy patient and seeing her run up hospital bills that rendered her quite unable to take care of her obligation to us. I recall vividly one afternoon in a dull season when, of the 12 goiter patients in one hospital I could show to a distinguished visitor from Australia 11 had been ligated or were getting into shape for ligation! That was an extreme case, but when we did more than a ligation on such patients the patients died and it was a procedure that many survived who would not have withstood even lobectomy within a month or two. That we were not overcautious is shown by the fact that we had to stop doing anything subsequent to ligation at the same hospital stay because too many of the patients died after direct attack on the gland within two weeks of ligation. Yet other authors would write of doing lobectomy or subtotal thyroidectomy within a few days of ligation and would do separate lobectomies almost on successive days whereas the patient on whom we do a single lobectomy does not have even a normal temperature for three or four days and practically never "comes back" and regains his preoperative status as judged by any criterion within one week at least. The answer is simply that we were then and still are dealing with an extremely sick group of patients who through

neglect of one sort or another come to us badly depleted; there is among them a higher incidence of individuals who have a loss of over a third of their body weight, circulatory failure, vomiting and diarrhea, acute thyrotoxic psychosis and preoperative deaths than in any other group that I have seen personally elsewhere or have found reported in the literature. Such an experience has only one advantage that compensates for the demands it makes on the surgeon: it forces him to close judgment of his cases (for there is little margin for error) and to endless efforts to add to the efficacy of his methods that he may hasten remissions, make operation safer and improve his remote results.

410 Metropolitan Building.

A PREVIEW OF MY BOOK ON SURGICAL PATHOLOGY OF THE MAMMARY GLAND

ARTHUR E. HERTZLER, M.D.

HALSTEAD, KAN.

A LANTERN SLIDE DEMONSTRATION

He who essays to write a book on the diseases of the breast has an entirely new outlook to consider. The old has become untenable and much that is new must be considered.

Indications for Operation.—Thirty years ago the dictum "When in doubt, do a radical operation" was popular. Since most men were in doubt in most cases this advice was tantamount to extending the indication for operation to all women; any woman who had anything wrong, or thought she had, was subject to a radical removal of the breast.

Now the viewpoint has changed. Ewing's dictum is that radical operation is not indicated until the lesion has proved to be cancer. This is quite a long way to cover in thirty years.

Prognosis.—The exaggerated notions of the results of operation which obtained a few years ago have now settled down to 10 per cent cured and another 10 per cent which can be kept alive for five or even ten years by means of the roentgen ray.

Changes in the Breast Epithelium.—The cutting down of the percentage of cures is not due to less skillful operations but to the fact that it is now known that the breast epithelium undergoes cyclic changes comparable to those in the mucosa of the uterus. The recognition of this fact has lessened the frequency of the diagnosis of malignancy. Such cases when operated on had no recurrence of cancer for the very obvious reason that they had no cancer in the first place.

Changes in the Connective Tissue.—Not so long ago it was the habit to speak of every breast examined as a "chronic interstitial mastitis." Like "chronic ovaritis" and "chronic appendicitis" it is now evident that what was formerly regarded as pathologic represents normal variations. As in appendicitis a terminal fibrosis the end-result of an acute inflammation must be differentiated from what has been regarded as a chronic inflammation.

Indications for Refraining From Operation.—In principle all cancers of the breast should be subjected to radical removal. There are exceptions to this rule. Cancers in the very young, say under 25 years of age, invariably recur after operation. These patients live longer if sent direct to the roentgenologist. Probably the acute cancer of lactation and cancer in buxom women near the menopause belong in the same category. At least preoperative and postoperative radiation seems to give a longer life than radical operation alone.

Indications for Radiation.—Apparently any recurrences except those of the parenchymatous organs demand radiation. The results seem to depend largely on the skill of the radiologist.

DISCUSSION

Dr. W. T. Coughlin, St. Louis: The subject of cancer of the breast should not go without discussion in a meeting of this kind. Every physician has had some experience with it. I think Dr. Hertzler said there was no such thing as a mastitis, but that I think should be qualified. He did not refer to the obvious but rather to the illusory type of mastitis. When one puts the hand on a breast and feels a great many masses and lumps he will not for a moment think there is nothing the matter with that breast. When the patient discovers a mass in her breast, in view of all this propaganda for cancer prevention, she becomes very uneasy and soon consults a surgeon about it. Whether it is serious or not he will not spend much time trying to reassure the woman there is nothing the matter with her. I would rather tell her, "Yes, there is a tumor there." Sometimes the patient can feel a lump that we cannot feel and finds it for us. Even if it is small I think it ought to be regarded seriously. Several times I have removed what I thought was an innocent lump of some kind and been told by the pathologist immediately that it was malignant. And the converse is also true. I have removed a breast for chronic interstitial mastitis and later had the patient return with a lump at the site of operation. That lump submitted to the same pathologist, and a good one, was diagnosed scirrhus cancer of the breast. He acknowledged he must have overlooked something in the first instance. That experience has been repeated many times in breast operations. When cancer is well advanced I quite agree that the diagnosis can be made by the feel. If it feels live cancer, if it feels hard, a somewhat attached feel, then at least 90 per cent are cancer. The presence or absence of pain is not important. Many cases of mastitis can be cured

Read at the 76th Annual Meeting of the Missouri State Medical Association, Kansas City, May 1-4, 1933.

with roentgen ray. I am firmly opposed to the idea that the blue dome cyst is always innocent. In many cases it may be, but I have demonstrated specimens before the St. Louis Medical Society showing the blue dome cyst at the bottom was a well developed cancer.

I do not know whether young folks live longer if we let them alone. I never had the courage to let them alone; I always operate and I have been surprised sometimes to see that recurrence was not more rapid. I was taught that the prognosis is grave when people are fat and young at the same time. But some of such cases have already lived more than fifteen years.

All my patients have roentgen ray after the removal of the cancer so I do not know much about what would have happened if they had not had roentgen ray treatment, but I do not think it made them any worse.

TRACHOMA IN THE WHITE POPULATION OF THE UNITED STATES

C. E. RICE, M.D.
ROLLA, MO.

A MOTION PICTURE DEMONSTRATION

This film is in two parts. Some of you eye men may think it is a little bit primitive but it is meant to be of some interest to the general practitioner also.

For those of you who do not know, trachoma is one of the major eye diseases in the State, if not *the* major eye disease. It is unfortunate that the majority of trachoma patients are unable to pursue the treatment they ought to have by eye physicians but the financial status of the people who have trachoma is such that they have to be treated by organized methods, by the State, or they do not receive it. In the last ten years we have seen over five thousand cases of trachoma in Missouri, most of them south of the Missouri River. A high percentage of these people are blind or near blind. About 700 in the State are receiving pensions because of blindness from trachoma.

Not everything that forms granulations of the conjunctiva is trachoma. We have emphasized the study of the cornea in this film as that is an important site of trachoma. We have seen well developed, generalized pannus in a child eighteen months of age.

This is trachoma in people whose ancestors have been in this country for one hundred years; not in the Indian or in the emigrant class but in the native whites. The field nurse is a very necessary part of this program as she must find these cases; otherwise most of them would stay there and become blind. Even after you find them you have great difficulty in getting them to take treatment. We have a small hospital in Tennessee and one in Kentucky, operating a good deal like the one at Rolla, Missouri. These field nurses cannot be bashful. If they see anybody that looks suspicious they try to examine their eyes. You can put up placards and advertise clinics in the newspapers but you have to go to see them personally also.

This is an important point in trachoma work, that you see it in adults as well as in children; in the grandparents, parents and children. If the pathology we see is confined to children alone, it is more likely to be folliculosis of the conjunctiva.

The spread of trachoma is mostly in family groups. I doubt if there is much of it spread in schools. It is the intimate contact in the home that spreads trachoma.

This work in Missouri is carried on as a cooperative enterprise between the United States Public Health Service and the State Board of Health. It has been going on since 1922 in this State. Most of the time there has been some research work going on, at the present time quite a bit of it in Washington University, most of the material coming from the hospital at Rolla. The bacteriologists are interested in getting early cases, untreated cases. We do not find these cases as often today as we did a few years ago. We still find them, but not so frequently. Some of these cases will go on to great loss of vision in spite of everything that can be done for them. We do believe that blindness can be prevented in most cases with proper treatment, especially if we get the cases early. The severe cases frequently do respond to the clearing up of foci of infection in other places. We frequently do a canthoplasty. It is a very helpful operation in trachoma.

We think of this trachoma program in three parts: First, finding the case; that is where the field nurse comes in. Second, educating these people in proper hygienic habits. The field nurse also helps in that. Of course while the patient is hospitalized we try to educate him. Third, treating the active cases. Many of these cases come in with rather perverted habits as to what they like to eat, but I have never seen a case of pellagra in these trachoma cases in Missouri.

At Rolla we have a converted residence where we can hospitalize about forty at one time. The average stay in the hospital is twenty-nine days. The building at Richmond, Kentucky, is owned by the Kentucky State Medical Association and turned over to us for use as a hospital.

The etiology of trachoma is as yet unknown or unestablished.

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FEBRUARY, 1934

NEW ST. LOUIS NEGRO HOSPITAL

In the last few years hospital facilities have been greatly increased in St. Louis. Unfortunately, however, this increase in hospital facilities has not been extended to the indigent colored sick, commensurate with the steady increase of the Negro population. Therefore, the deplorable conditions under which Negroes are being treated at City Hospital No. 2 have been condemned by every hospital investigator and every grand jury within the last seven years.

Prior to January 1, 1919, the indigent colored sick of St. Louis were treated at City Hospital No. 1 in quarters which were very undesirable and inadequate. A movement for a separate institution culminated in the purchase of the old Centenary Hospital and the Barnes Medical College buildings located on the northeastern corner of Garrison and Lawton avenues, at a cost to the city of $63,500. Extensive repairs were carried out on these buildings in an effort to convert them into an institution suitable for the treatment of the sick. It soon became apparent that these buildings could not be made suitable for a modern hospital and in 1923 $1,200,000 of the $87,000,000 bond issue was set aside for the construction of a modern hospital for Negroes.

During the next ten years various delays and changes in plans left a depleted fund when the city was ready to construct the hospital. The hospital was begun but available money would not allow for an institution large enough to accommodate the demands.

In the meantime, the population was increasing and with the onset of the marked economic distress the daily average number of patients increased from 230 to 550.

Under the present arrangement at City Hospital No. 2 many different types of cases are intermingled on the various floors, tuberculous and nontuberculous cases often lying in adjoining beds. Many children with relatively minor complaints have contracted serious and even fatal diseases as a result of improper isolation. The present west building is in such poor physical state that only one floor out of the six dare be used. On this one floor the population has reached 190; amongst them are the tuberculous, venereal diseases, neurological diseases, orthopedic diseases and sometimes even small children admitted for minor operative procedures. In the event of fire there is only one exit, a narrow wooden stairway; and most of these patients are bedfast. The new-born babies and undelivered mothers are kept on the top floor of the east building where the temperature, because of the tin roof, sometimes reaches 102 to 103 degrees in the summer months. It has been reported that many new-born babies have lost their lives as a result of these atmospheric conditions. The sanitation facilities for these patients is best expressed by saying that from fifty to sixty patients must use one small bath room in which there is located one stool and one antiquated tub. The lack of sanitation in this particular situation has invoked criticism from the Health Department many times. There are no laboratory facilities, laundry, drug room or other fundamental hospital necessities in this institution so that all these basic necessities must be secured through an inadequate system of transportation from City Hospital No. 1.

The evils of overcrowding, inadequate hospital facilities and hospital space were partially alleviated by a recent arrangement which made it possible to transfer 165 patients from this institution to the St. Mary's Infirmary and the People's Hospital. The transfer of these patients was one of the first steps taken by Mayor Bernard F. Dickmann when he assumed office. He has further limited the bed capacity to 300 which is now never exceeded. This has improved the sanitary conditions, the services to the patients and the obvious fire hazard of having patients scattered in hallways and in front of the fire exits.

On November 21, 1933, the transfer to the hospital fund of $1,500,000, set aside to build a railroad approach to the Free Bridge from the East side of the river, which had been taken care of by other means, assured the Negroes of a new hospital. It will also make possible the city's securing additional funds from the Federal Government. These funds, in addition to completing the new City Hospital for Negroes, will make possible the much needed improvements to other municipal institutions, especially Koch Hospital, City Sanitarium and City Hospital No. 1.

When the new hospital is completed, it will be a unit unto itself. The institution will be

modern in every respect and will have a bed capacity of 600. It will have its own laboratory, laundry, roentgen ray department, drug room and other basic departments, also a dispensary that will accommodate from 450 to 500 patients a day. The total cost of the institution will be $2,500,000 and it will be ready for occupancy about July, 1935.

MEDICAL AND HOSPITAL CARE FOR CWA EMPLOYEES

Full instructions issued by the United States Employees Commission to State Civil Works Administrations concerning the selection of private physicians for compensation work appeared in the January 13 issue of the *Journal of the American Medical Association.*

Under these instructions officers of county medical societies will be asked to share the responsibility of preparing a list of the local physicians to supplement Federal Government medical facilities when these are inadequate or not available. The list should include all licensed physicians in the locality (whether members of the county medical society or not) who are qualified by training and experience to render service to injured Civil Works Administration employees and who are willing to cooperate with the United States Employees Compensation Commission. Fees will not be in excess of those charged by physicians generally to patients in the same income class as the injured employee.

Full instructions for hospitalizing cases arising out of injuries received by Civil Works Administration employees together with an agreed schedule of hospitalization fees was printed in the January 20 issue of the *Journal of the American Medical Association.* It will be noted that employees of the Civil Works Administration who suffer injuries while in the performance of duty are entitled to the necessary hospital care for the treatment of conditions due to such injuries. They must be referred to Federal hospitals when such hospitals are available and adequate. When Federal hospital facilities are not available or not adequate, conditions requiring immediate hospital care will be sent to the nearest suitable hospital which desires to participate in the service at the rates specified in the approved schedule. Advice as to the suitability of local hospitals will be secured from medical advisory councils which may already be set up under Rules and Regulations No. 7 of the Federal Emergency Relief Administration, hospital associations and county medical societies.

A $3.50 per diem rate for all hospital cases of injured employees of the Civil Works Administration will be general throughout the United States. Various items of service are included in the rate, viz: The use of a single room when necessary; ordinary nursing; special diets, usual medicines; blood counts; general medical and surgical care by the house staff, etc. The item "general medical and surgical care by the house staff' is interpreted to mean service customarily rendered by interns and resident physicians and not to supplant the services of attending physicians.

For additional information address the Secretary of the Association, Missouri Building, St. Louis, Mo.

CHARGES AGAINST DR. L. C. OBROCK DISMISSED

Charges of dereliction of duty against Dr. L. C. Obrock, Clayton, health commissioner of St. Louis County, were dismissed by the State Board of Health, January 15. The charges were based on failure to administer Pasteur treatment to six persons bitten by a rabid dog February 28, 1933. Two of these persons died without Pasteur treatment but the treatment was then given to the other four. The county court made charges of incompetency against Dr. Obrock before the State Board of Health after the Attorney-General held the court without authority to act.

The Board gave the charges a lengthy hearing on December 6, 1933, and on January 15, 1934, rendered its decision and dismissed the charges. In doing so the Board pointed out the importance of a competent official for the position of health commissioner of St. Louis County. There is constant communication between St. Louis City and St. Louis County. All transients from the North, South and West must pass through the county to enter the city. There is constant interchange of food, milk and other commodities which fall under the supervision of the health official, and interdependent sewer systems are under construction. The county health officer should be prepared to cope with public health problems in a manner comparable to officials who have served St. Louis City for the last 31 years.

The board feels there can be no question of the desirability of these requirements and that no action which may be taken with respect to the present or any future incumbent of the county health position must be considered as in any way invalidating or weakening the conviction of the State Board of Heath or any similar group of persons concerning the soundness of this

conclusion. Care should be taken that such appointees should possess these necessary requirements. The appointive power of the St. Louis County Health officer rests with the county court.

In concluding the summary of its findings the Board said:

> We feel that the present incumbent has discharged his responsibility with about the average degree of competency as may be found in a fair percentage of health officers. From the evidence submitted we find his action is open to criticism only to the extent that he did not exhaust all the means at his disposal to positively assure himself of a proper diagnosis.
>
> While a County Health officer should follow those measures which will give the greatest degree of protection to the population of the county and the city it still is important that the rights of the individual patient be safeguarded by the health officer and that public responsibility must not be allowed to outweigh personal consideration so as to impose an unnecessary and perhaps unjustifiable demand upon individuals.
>
> The Board finds and concludes that in view of all the circumstances surrounding this case the defendant's action does not warrant dismissal from office, but that his neglect to follow and keep in touch with the clinical aspects and final results in the cases which terminated fatally is just cause for censure. The charges, therefore, are dismissed.

NEWS NOTES

At the regular meeting of the St. Louis Trudeau Club, January 4, at Barnes Hospital, St. Louis, demonstrations of clinical cases were presented by Drs. J. J. Singer, E. A. Graham, Alfred Goldman, William Tuttle and Duff Allen, St. Louis.

The St. Louis Clinics are offering an award of $100 and a certificate of award to the member of the St. Louis Medical Society presenting the best paper at the Society during 1934. The awards will be made during the clinical conference of the clinics in 1935.

Dr. Lee Edward Travis, Iowa City, professor of speech at Iowa State University, addressed a meeting of the League for Rehabilitation of Speech at the Central Institute for the Deaf, St. Louis, December 8. Dr. Paul Zentay, St. Louis, presided.

The State Board of Health reelected its former officers at a meeting in Jefferson City, January 16. The officers are: President, Dr. Emmett P. North, St. Louis; vice president, Dr. P. T. Bohan, Kansas City, and secretary, Dr. E. T. McGaugh, Richmond.

Dr. O. Jason Dixon, Kansas City, spoke before the Mid-Western Section of the American Laryngological, Rhinological and Otological Society at their annual meeting held in St. Louis, December 15. His subject was "Application of Viable Muscle Implants in Vascular Injuries."

Drs. Paul Zentay and P. E. Kubitschek, St. Louis, presented addresses at the meeting of the Missouri Society for Mental Hygiene in St. Louis, January 12. Dr. Zentay spoke on "Family Background and Developmental Factors" and Dr. Kubitschek spoke on "Constitution and Personality as a Factor in the Production of Mental Disease."

Dr. Frank R. Teachenor, Kansas City, was elected president of the Western Surgical Association at the annual meeting in Cincinnati, December 8 and 9. Dr. Thomas G. Orr, Kansas City, was reelected treasurer. Two papers were presented by Kansas City members; Dr. Elmer D. Twyman spoke on "Cancer Surgery of the Lip and Neck" and Dr. James R. McVay on "Perinephritic Abscess."

The Barnard Free Skin and Cancer Hospital, St. Louis, received a bequest by the terms of the will of the late Mrs. Mary L. Barnard. The hospital was founded by her late husband, Mr. George D. Barnard. Mrs. Barnard made several bequests in her will and the rest of her estate was left to the hospital. She has made yearly contributions to the hospital since the death of her husband in 1916.

The Southeastern Surgical Congress will hold its fifth annual assembly in Nashville, Tennessee, March 5, 6 and 7. Hotel headquarters will be in the Andrew Jackson Hotel and lectures and exhibits will be in the War Memorial Building. Among the speakers will be Drs. Vilray P. Blair and J. B. Brown, St. Louis, and Arthur E. Hertzler, Halstead, Kansas. Dr. B. T. Beasley, 1019 Doctors Building, Atlanta, Georgia, is in charge of registration for the session.

The staff of the St. Joseph Hospital, Kansas City, held an annual dinner and election of officers January 8. Officers elected are: President, Dr. T. J. Beattie; chief of staff, Dr. Harry L. Jones; vice president, Dr. W. M. Ketcham; secretary, Dr. V. T. Williams, and treasurer, Dr. C. S. Capell, all of Kansas City. Speakers at the meeting were Drs. Emsley T. Johnson, Radford H. Pittam, J. M. Frankenburger and C. S. Capell.

The fifth annual meeting of the Medical Association of the Missouri Pacific Railroad was held in Memphis, Tennessee, January 26 and 27. Members of the Missouri State Medical Association who appeared on the program are Drs. J. Edgar Stewart, L. B. Harrison, Allen B. Potter, E. P. North and Ernest Sachs, St. Louis. Dr. J. E. Castles, Kansas City, president of the association, presided at the scientific sessions and delivered an address at a banquet the first evening of the meeting.

Dr. Anton Elschnig, Prague, Czechoslovakia, will give a course in ophthalmology in St. Louis, February 13 to 17 inclusive under the auspices of the Ophthalmic Section of the St. Louis Medical Society and the St. Louis Ophthalmic Society. Lectures will begin at 3:30 p. m. except on Saturday when there will be an operative demonstration from 2 to 5 p. m. The fee for the course is $15. Anyone desiring to register for these lectures can communicate with Dr. Lawrence T. Post, McMillan Hospital, St. Louis.

The regular monthly hospital clinic of the Kansas City Southwest Clinical Society will be held February 13 at St. Mary's Hospital, Kansas City. The program has been outlined in three sections. The first section will be presented by the departments of medicine and surgery. The second will deal with the medical aspect of industrial patients from the standpoint of the surgeon, internist, ophthalmologist and laryngologist. The third section will be presented by the department of obstetrics and gynecology. There will also be demonstrations throughout the morning of plates and specimens from the departments of roentgenology and pathology.

The sectional meeting of the American College of Surgeons, including Oklahoma, Texas, Arkansas, Missouri and Kansas, will be held in Oklahoma City, February 22 and 23. The program will consist of well arranged clinics in general surgery and eye, ear, nose and throat surgery at local hospitals; clinical addresses and scientific sessions, and a hospital conference for the discussion of medico-administrative problems. The session will close with a community health meeting at which visiting speakers will address a lay audience. The medical profession is invited to attend the session and detailed information may be obtained by addressing Dr. LeRoy Long, 117 N. Broadway, Oklahoma City.

Dr. Walter B. Cannon, professor of physiology, Harvard University, presented the annual Hodgen lecture at the St. Louis Medical Society Building, January 9. His subject was "The Significance of the Emotional Level." The lecture is sponsored annually by the St. Louis Surgical Society and Medical Fund Society. On the evening of the lecture a memorial plaque of Dr. Hodgen was unveiled in the entrance hall of the St. Louis Medical Society Building, a gift of the two organizations sponsoring the lecture.

Approximately a thousand physicians are cooperating with the Municipal Health Division of the St. Louis Health Department in a campaign to bring diphtheria under control, according to Dr. Paul J. Zentay, assistant health commissioner. Names of physicians cooperating are listed according to districts showing the office hours and special hours for immunization work. The lists are being distributed in the form of information cards by nurses, through schools, clinics and health agencies throughout the city. Last year there were 768 cases of diphtheria and 31 deaths.

The fifth scientific congress of the Pan American Medical Association will be in the form of a sixteen-day cruise to Venezuela leaving New York March 14. The cruise will include visits at Havana, Colon, Cartagena, Puerto, Cabello, LaGuaira and San Juan. The SS "Pennsylvania" has been chartered by the association. Scientific sessions will be held en route and at some of the stops. Receptions and other entertainment have been arranged at various ports of call and on ship board. The American Express Company is handling all reservations subject to the approval of the association.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

The Nodaway County Medical Society had as its guests at Maryville on January 3, Drs. E. H. Shorer and James R. McVay, Kansas City. Dr. Schorer spoke on "Pediatrics" and Dr. McVay on "Perinephritic Abscess."

On January 29 Drs. Leith Slocumb and P. C. Schnoebelen, St. Louis, were the guests of the Lincoln County Medical Society at Troy. Dr. Schnoebelen spoke on "Colon Conditions, Diagnosis and Treatment" and Dr. Slocumb spoke on "Rectal Conditions."

Drs. C. C. Conover and E. R. Dewesse, Kansas City, were the guests of the Jasper County Medical Society, January 30, at Joplin. They spoke on "Functional Disorders of the Colon from the Roentgen Ray and Clinical Standpoint."

OBITUARY

BENJAMIN FRANKLIN CARR, M.D.

Dr. Benjamin F. Carr, Polo, a graduate of Jefferson Medical College of Philadelphia, 1886, died at his home, November 11, 1933, aged 81 years.

Dr. Carr was born in Rockbridge County, Virginia. At the close of the Civil War his family moved to Carroll County, Missouri, and after a very short time both parents died. Dr. Carr made his home with an uncle and struggled determinedly for an education assisting himself to further education by teaching. His interest in education did not end with securing his medical degree. He was ever a student and studied constantly to keep abreast in medicine. His recreation was reading classics.

Through his unfailing service Dr. Carr endeared himself to families of the community for two generations. His civic interest was evidenced by his activity in a number of Polo enterprises.

Dr. Carr was a loyal member of the Caldwell-Livingston County Medical Society. He was censor of the Society in 1924 and delegate to the State Meeting in 1926.

He is survived by his widow, one daughter and two sons, one of whom is Dr. W. A. Carr, Merriman, Kansas.

REINHART LEMEUL HILD, M.D.

Dr. Reinhart L. Hild was born at Traer, Iowa, August 16, 1869, and died suddenly November 19, 1933, of a coronary thrombosis following a lingering heart disease.

Dr. Hild received his preliminary education at Fair, Iowa, and the family moved to Springfield, Illinois, where he continued his schooling. In 1904 he entered the Hahnemann Homeopathic Medical College in St. Louis of which he graduated in 1907, a member of the Phi Alpha Gamma fraternity.

He opened his office in his home on Taylor and Cook, spending considerable time in the clinics of the old Children's Hospital on Jefferson Avenue. He was very active in surgery of children at this hospital. About 1909 he took charge of the clinic known as the Holy Cross Dispensary at Twelfth and Benton in which he personally saw thirty to seventy-five charity patients per day. Two days a week were open for baby feeding. He worked daily in this dispensary until he was stricken with a streptococcus infection while attending a child at this work. He was bedfast for a number of weeks and narrowly escaped death at this time. He was forced to give up the clinic and the staff of St. Luke's Hospital continued it.

The death of Dr. Hild marks the passing of another of our old family general practitioners. He was an excellent diagnostician and was called upon to perform everything in which any member of the family was afflicted, from the obstetrical care, internal medicine, pediatrics to minor or major surgical procedures.

He accumulated a vast library, read considerably, books and journals, and kept up with the advances of medicine and surgery. He had very little time for recreation due to his extensive general practice. He was on duty almost twenty-four hours a day.

His hobbies consisted in building and assembling radios when they were in their infancy. He was also, more or less, a student of astronomy and had quite a complete equipment in this work at his home. Yet he professed more enjoyment, more thrill in getting out of bed on a cold December night to attend some poor unfortunate charity patient in the slums of St. Louis.

Besides his large family of patients who were his friends, he leaves his widow and daughter.

His widow and daughter receive our most heartful sympathy. Their loss is greatest.—S. S. L., in the *Bulletin* of the St. Louis Medical Society.

JOHN J. FARRELL, M.D.

Dr. John J. Farrell, Hannibal, a graduate of Washington University School of Medicine, 1901, died December 3, 1933, at St. Elizabeth's Hospital, Hannibal, from a cerebral hemorrhage. He had been ill for several weeks but had been in the hospital only a few days. He was 55 years old.

Dr. Farrell was born in Hannibal and received his preliminary education there. Following his studies at Washington University School of Medicine he studied for some time in Vienna and then interned in St. Louis City Hospital. He began practice in Hannibal where he remained and made an enviable reputation as a prominent and successful physician. For a number of years he was chief of staff of St. Elizabeth's Hospital and at the time of his death was a member of the staff of Levering Hospital.

During the World War Dr. Farrell served as captain in the medical corps, United States Army, stationed at Fort Riley, Kansas. He maintained a deep interest in ex-service men and was active in the Emmette J. Shields Post of the American Legion.

Dr. Farrell was an interested member of the Marion-Ralls County Medical Society and served as president of the Society at one time.

During his practice Dr. Farrell combined with his great ability as a physician a rare feeling of sympathy for his patients and his kindness combined with his skill caused him to be loved and respected by all with whom he came in contact. He was devoted to his life's profession and gave himself unceasingly to his work and his deep interest in the relief of suffering combined to form a successful physician's career. Dr. Farrell was devoted to his home and his family and was a loyal and true friend.

He is survived by his widow, Mrs. Beatrice Farrell, a daughter and a sister.

OVARIAN THERAPY

The work of Jacob Brem and Jerome S. Leopold, New York (Journal A. M. A., Jan. 20, 1934), does not support the theory of the close relationship of the female sex hormone to hemophilia: 1. They have not been able to demonstrate the presence of the estrogenic substance in the urine of normal males. If the female sex hormone holds hemophilia in abeyance, it should be present in the urine of all normal males rather than in isolated cases. 2. The commercial estrogenic substance employed by the authors, of known potency, failed to reduce the coagulation time of the blood or stop the several hemorrhages in their hemophilic patient. It would seem that symptomatic treatment and blood transfusions are still the methods of choice in hemophilia.

State Department of Health of Missouri

JEFFERSON CITY

Emmett P. North, M.D., St. Louis, President
E. T. McGaugh, M.D., Jefferson City, Secretary
P. T. Bohan, M. D., Kansas City
W. T. Elam, M.D., St. Joseph
E. S. Smith, M.D., Kirksville
W. A. Clark, M.D., Jefferson City
T. S. Bourke, M.D., Kansas City

COMMUNITY SANITATION PROJECT

The United States Public Health Service in conjunction with the State Board of Health is carrying out a program of community sanitation in sixty counties of the state. It was the hope of the State Board of Health that it would be possible to carry on this program in all of the counties of the state, however, United States Public Health Service funds were made available for only sixty counties. Dr. E. T. McGaugh, State Health Commissioner, has supervision of the program.

This project is being carried on with CWA labor and consists of building sanitary pit privies in areas where public sewerage systems are not available. The only cost to the property owner is that of materials, the labor and supervision being furnished free. In most localities the cost of material is approximately $16.00 for an entirely new privy. Where an existing privy building is worth salvaging the cost for material is considerably less.

The need of a low cost sanitary method of sewage disposal is very apparent in small communities that are unsewered and in the unsewered areas of larger cities. The design of the privies that are being built represents the combined efforts of engineers of the United States Public Health Service and of the State Board of Health, and every effort has been made to keep the cost to a minimum without sacrificing any of the sanitary considerations. It is hoped that members of the medical profession who are practicing in areas where this work is being carried on will urge property owners to take advantage of this opportunity.

The districts and their supervisors follow: District A, Wilbur W. Young, Parkville; District B, Wilbert Shupp, Clinton; District C, John P. Harmon, Crane Hotel, Carthage; District D, Minehardt J. Sannebeck, Columbia; District E, Walter E. Casey, Versailles; District F, Gale H. Miller, Cuba; District G, W. L. McIntyre, Lebanon; District H, Thad L. Stubbs, Potosi.

WATER ANALYSES

The State Board of Health takes this opportunity of bringing to the attention of the members of the Missouri State Medical Association its regulations concerning the analysis of water samples. We feel that the practicing physician can do us a great favor by disseminating this information among his patients.

Under the authority of Section 9032, Revised Statutes of Missouri, 1929, a fee of $1.00 per sample is charged for the bacteriological analysis of water from private supplies. This fee should accompany the request to this department for a container. The only exception to this rule is that analyses are made free of charge for deputy state health commissioners when such analyses are necessary in solving a public health problem such as tracing the source of a filth-borne epidemic or in determining the suitability of a school water supply. Samples cannot be analyzed unless they are submitted in containers furnished by the State Board of Health. Obviously, this requirement is necessary in order to prevent samples being submitted in containers which have not been properly sterilized.

The physician can also render the State Board of Health a great service by impressing on lay people the fact that samples for bacteriological analysis should not be submitted from water supplies that are not properly protected against surface contamination. In our opinion, a single satisfactory analysis from an improperly constructed water supply often engenders a false sense of security in the layman's mind. If a sample from such a supply is analyzed after a rainfall, gross contamination may be found. For this reason, it is recommended that samples be submitted only from satisfactorily constructed water supplies. Sketches showing proper construction of public water supplies and instructions for disinfection of contaminated water supplies are available upon request.

Frequently letters are received from lay people requesting that a sample of water be analyzed for typhoid organisms. In all of these cases it is necessary to inform the person making the request that it is impossible, in routine bacteriological procedure, to determine whether or not the typhoid organism is present, and that the only determination which is made is for the presence of B. coli. The presence of this group simply indicates that the supply is receiving sewage pollution, either human or animal, and therefore that there is a possibility of pathogenic organisms from the intestinal tract entering the water supply.

CEREBRAL CYSTS

Winchell McK. Craig and James W. Kernohan, Rochester, Minn. (Journal A. M. A., Jan. 6, 1934), present cases illustrating a variety of cerebral cysts and state that the cerebral cysts encountered at operation may be congenital, inflammatory, traumatic, parasitic or neoplastic. To the neurosurgeon, the most important and common group encountered is that which occurs with neoplasms; these were found to be associated with practically all types of primary tumors of the brain above the tentorium. A much rarer type of tumor in this situation, containing cysts, is the meningioma, of which only two were encountered. It was found that only the neoplastic cysts consistently contained xanthochromic fluid, whereas all the other cysts contained clear fluid. It was noted further that in general the more benign the glioma, the more prone it was to undergo cystic degeneration. Decompression and simple drainage were often followed by a long period of palliative relief, thus allowing the more radical procedures, such as partial or complete removal of the tumor when the patient's condition warranted. Following initial drainage, subsequent aspirations were sometimes necessary to prolong the palliation. Several operative procedures were sometimes necessary for the more benign tumors in order to remove them completely.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Mercer County Medical Society, January 10, 1934.

AUDRAIN COUNTY MEDICAL SOCIETY

The Audrain County Medical Society elected officers for 1934 as follows: President, Dr. J. Frank Jolley, Mexico; vice president, Dr. W. K. McCall, Laddonia; secretary and treasurer, Dr. H. C. Brashear, Mexico; delegate, Dr. R. W. Berrey, Mexico, and alternate delegate, Dr. J. F. Harrison, Mexico.

H. C. Brashear, M.D., Secretary.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met in McAllister Hall, Columbia, November 7, with Dr. Frank G. Nifong, Columbia, president, in the chair. Only eleven members were present.

The secretary read a letter of appreciation from Mrs. James Gordon.

Dr. Edgar D. Baskett, Columbia, chairman of the program committee, stated that Dr. J. A. Myers, Minneapolis, specialist on tuberculosis, would be in Columbia, December 6, and a discussion followed concerning plans for having Dr. Myers address the Society. Dr. Dudley A. Robnett, Columbia, moved, seconded by Dr. Baskett, that the time be left to the chair.

Dr. M. D. Overholser, Columbia, presented a paper on "Hormones and Cancer," illustrated with lantern slides. This was an interesting paper and showed that the doctor had worked diligently on his subject. His presentation was much appreciated and was discussed by Drs. Nifong, Baskett, R. H. Simpson and S. D. Smith, Columbia.

Meeting of December 5

The Boone County Medical Society met at the Harris Cafe for the annual dinner with twenty-two members present. After partaking of a splendid meal Dr. Nifong called the meeting to order.

The secretary read a communication from the Secretary of the Missouri State Medical Association in reference to care of the indigent sick.

Officers were elected as follows: President, Dr. A. R. McComas, Sturgeon; vice president, Dr. S. C. Smith, Columbia; secretary and treasurer, Dr. M. E. Cooper, Columbia; censor, Dr. M. P. Neal; delegate, Dr. Frank G. Nifong, Columbia; alternate, Dr. R. S. Battersby, Columbia, and member of auxiliary committee, Dr. D. A. Robnett, Columbia.

The scientific program was a "Symposium on Encephalitis" by Drs. E. D. Baskett, N. R. Zeigler and M. P. Neal, Columbia. This subject was discussed from many angles in an able manner.

Dr. Baskett led the discussion from the standpoint of history and compared the various types of encephalitis with the recent epidemic in St. Louis and Columbia, also mortality and sequela.

Dr. Zeigler led the discussion from the standpoint of etiology. In the study of the investigation in St. Louis, he stressed the importance of correlating all of the diagnostic procedures and the use of spinal punctures in making the diagnosis in mild cases.

Dr. Neal discussed the many forms of encephalitis and classified them as acute, chronic, diffuse, focal or circumscribed. As to recent encephalitis in St. Louis and Columbia Dr. Neal said it has not been proven that it is due to a filtrable virus alone. Inclusion bodies are found in a variety of diseases such as smallpox, chicken pox, rabies and poliomyelitis. Other support must be forthcoming to critically establish these as having anything to do with acute epidemic encephalitis and to prove that they are caused by virus infection.

Meeting of December 6

Dr. J. A. Myers, Minneapolis, was the guest speaker at a luncheon given by the Boone County Medical Society. His subject was "Recent Advancement in Diagnosis and Treatment of Tuberculosis." Dr. Myers chose to call his studies of tuberculosis the longitudinal point of view rather than cross section study, that is, he followed cases of groups through a period of years. Eighty-five thousand people still die in the United States each year with tuberculosis. Dr. Myers lays great stress upon the value of the tuberculin test. Seventy per cent of students entering the University of Minnesota give a negative tuberculin test; 30 per cent give a positive tuberculin test and offer a chance to study the history of the students making up the latter group. He stresses the importance of future study of this group; some of them may be active, others become active. All of them have come in contact with active cases some time in their lives.

Studies of high school students from a period of 1920 to 1933 shows a drop of positive tuberculin reactions from 33 per cent to 28 per cent. The bovine type of tuberculosis is getting so rare that it is hard to find cases in humans for study. The goal is 100 per cent of children with a negative tuberculin test.

Dr. Myers was the speaker at a convocation at the University of Missouri, also at Stephens College on the subject "Tuberculosis."

S. D. Smith, M.D., Secretary.

THE BUCHANAN COUNTY MEDICAL SOCIETY

The regular meeting of the Buchanan County Medical Society was called to order by the president, Dr. W. H. Minton, in the Missouri Methodist Hospital at 8 p. m. December 20.

The transfer card of Dr. C. O. Dewey, from the Page County (Iowa) Medical Society, was read and by vote turned over to the board of censors for further consideration.

A by-law for the Society was proposed which reads as follows:

Chapter 7, Section 14, Committee on State Medicine. This committee shall consist of three members appointed annually by the president. The purpose of this committee shall be to

keep the society informed of all the developments in the movement for "State Medicine" in city, county, state and nation, and to cooperate with the Missouri State Medical Association and the American Medical Association when ordered so to do by the Buchanan County Medical Society. This committee is not empowered to act of its own motion for the Society.

Signed: Daniel Morton, M.D.

A motion was made by Dr. H. W. Carle, and duly seconded, that a banquet be given at the next meeting at which time the new officers will be installed.

The scientific part of the program was presented by Drs. W. Roger Moore and J. H. Ryan, on the subject "Pseudohypertrophic Muscular Dystrophy." This was an interesting presentation and illustrated by a preliminary report of the treatment of ten cases, histopathological slides and motion pictures. Discussion by Drs. Carle, Chas. Greenberg, Floyd H. Spencer, Wm. T. Elam, W. D. Webb and A. B. McGlothlan. Closed by Drs. Moore and Ryan.

Drs. Moore and Ryan received many compliments for the very able manner in which they presented this interesting subject.

Meeting of January 3

A social meeting was held for the installation of officers. The members met in the St. Francis Hotel parlors at 6 o'clock where a general good time was enjoyed until 7 o'clock when they repaired to the dining room where dinner was served.

After the dinner, in the absence of the retiring president and vice president, the meeting was called to order by the secretary, Dr. Emmett F. Cook, who after explaining the reason for the absence of the presiding officers introduced Dr. Horace W. Carle, a past president of the Society who immediately took charge of the meeting.

Dr. Carle made a few timely remarks after which he introduced our new president, Dr. Willard C. Proud, who delivered his inaugural address in which among other things he outlined some of the things he expects to accomplish during the year 1934. The address was listened to very attentively by all the members present and the points were well taken.

Immdiately after the president's address one of our past presidents, Dr. Leroi Beck, presented the new president with a gavel which was made from the wood out of a tree that was cut along the highway from Washington to Mt. Vernon. Motion was made and duly seconded that Dr. Beck be extended a vote of thanks for this beautiful and very useful gift to the Society.

Emmett F. Cook, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society held its regular monthly meeting in the Chamber of Commerce rooms in Cape Girardeau at 8 p. m., December 11.

Dr. M. H. Shelby, president, called the meeting to order. Other members present were: Drs. B. W. Hays and D. I. L. Seabaugh, Jackson; S. Doggett, O. L. Seabaugh, W. N. Howard, J. H. Cochran, J. J. Drace, J. F. Chostner, D. H. Hope, H. V. Ashley, W. E. Yount and C. A. W. Zimmermann, Cape Girardeau.

Dr. M. H. Shelby appointed Dr. J. H. Cochran and the president as members to censor papers to be read before lay societies.

New officers were elected for the ensuing year as follows: President, Dr. H. V. Ashley, Cape Girardeau; vice president, Dr. D. I. L. Seabaugh, Cape Girardeau; secretary, Dr. C. A. W. Zimmermann, Cape Girardeau; treasurer, Dr. B. W. Hays, Jackson; delegate with power to select alternate, Dr. B. W. Hays, Jackson. Dr. B. W. Hays, the outgoing censor, was reelected for a three year term.

Dr. B. W. Hays read a paper entitled "Influenza." A full appreciation of the fine paper was evidenced by the animated discussion which followed.

C. A. W. Zimmermann, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met in regular quarterly session at Harrisonville, December 14, with Dr. H. A. Brierly, Peculiar, president, in the chair.

Dr. M. P. Overholser, Harrisonville, moved that the Society purchase a copy of the American Medical Association Directory. Motion seconded and carried.

Dr. H. A. Brierly, in his presidential address, recalled some of the difficulties and hardships of his early day practice and reviewed the progress of medicine since he began its study and practice.

The secretary's report, by Dr. J. S. Triplett, Harrisonville, included some of the early history of the Society and a roll call of its charter members and other physicians living in the county in 1903.

It was moved, seconded and carried that the secretary's report be preserved in the records of the Society.

Dr. B. O. Hartwell, Drexel, reported a case of tularemia and one of toxemia of pregnancy with cesarean section. This was followed by a spirited discussion of toxemia of pregnancy with cesarean section.

The following officers were elected for 1934: President, Dr. T. W. Adair, Archie; vice president, Dr. Wm. Beckman, Strassburg, and secretary-treasurer, Dr. J. S. Triplett, Harrisonville, reelected. Dr. B. O. Hartwell, Drexel, was elected to serve on the board of censors, term to expire December, 1936.

Drs. F. B. Ellis, Garden City; L. V. Murray, Pleasant Hill; M. P. Overholser, Harrisonville, and B. B. Tout, Archie, were selected as contributors for the meeting March 8, 1934.

Drs. O. B. Hall and L. J. Schofield, Warrensburg, were visitors.

J. S. Triplett, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The last meeting for 1933 was held at the Jack-O-Lantern Cafe in Liberty, December 21. Twenty members and wives were there and partook of an excellent turkey dinner. There were no visitors present.

The Woman's Auxiliary met concurrently at the Goodson residence in Liberty.

The following officers were elected for 1934: President, Dr. Eugene C. Robichaux, Excelsior Springs; vice president, Dr. Harry R. Staley, North Kansas City; secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs; censor for three years, Dr. J. H. Rothwell, Liberty; delegate, Dr. R. E. Sevier, Liberty, and alternate, Dr. S. D. Henry, Excelsior Springs.

Dr. Sevier thanked the Society for loyalty and harmony during his term as president.

Dr. J. J. Gaines was elected an honor member.

Dr. Joseph Dauksys, Excelsior Springs, invited the Society to hold its February meeting in the U. S. Government Hospital at Excelsior Springs; the Society was unanimous in accepting the invitation.

Dr. J. H. Rothwell, Liberty, entertained the meeting with a chapter of his early day memoirs which have attracted the attention of the metropolitan press.

Dr. E. C. Robichaux, Excelsior Springs, reported a case of tetanus of unusual interest with a perfect outcome due to the rational use of tetanus serum in most heroic doses. Dr. Y. D. Craven, Excelsior Springs, was associated with him in the case. A general and instructive discussion followed.

Dr. Rothwell was invited by unanimous vote to compile from minutes of the Society a history of newspaper advertising and how early members fought against it—the newspaper "puff," after obstetric cases, tonsillectomies and other minor surgical exploits. Dr. Rothwell will tell us something interesting about early-day sins of the elect.

J. J. Gaines, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

The regular meeting of the Dallas-Hickory-Polk County Medical Society was called to order at the High School Building, Weableau, September 5, at 3:00 p. m. by the president, Dr. A. S. Johnston, Wheatland. Nineteen members and six guests were present.

Scientific addresses of the afternoon were presented by guests from Springfield as follows: "Diarrhea in Infancy," by Dr. Urban J. Busiek; "Tonsils and Adenoids," by Dr. A. W. Gifford; "Surgery of Upper Abdomen," by Dr. F. T. H'Doubler. Papers and discussions were well presented and enjoyed by all.

Following the program an excellent dinner was served by the host, Dr. W. O. Reser, Weableau, to all members, guests and their wives.

Meeting of October 3

The Dallas-Hickory-Polk County Medical Society held their regular monthly scientific session at the Urbana High School Building, Urbana, at 3:00 p. m. Fourteen members and five guests were present.

The first address of the afternoon was presented by Dr. E. E. Glenn, Springfield, on "Chronic Diseases of the Chest."

Dr. E. E. Roseberry, Springfield, spoke on "Importance of Early Diagnosis of the Acute Abdomen."

Dr. J. W. Murray, Quincy, spoke on "Pneumonia."

At the conclusion of the program the host, Dr. R. E. Harrell, Urbana, conducted the group to the high school dining room where a delicious dinner was served by the home economics class of the Urbana High School.

Meeting of November 7

The regular meeting of the Dallas-Hickory-Polk County Medical Society met at Cross Timbers, at 3:00 p. m. Fourteen members and two guests were present.

Dr. W. S. Sewell, Springfield, opened the scientific session with an interesting discussion and lecture on "Acute Urethritis and Acute Cystitis."

Dr. F. A. Harrison, Springfield, presented an interesting and instructive paper on "Upper Respiratory Diseases in Children."

This being the Thanksgiving session the host, Dr. J. M. Edwards, Cross Timbers, had prepared a turkey dinner for all members, guests and their wives.

Meeting of December 5

The December meeting of the Dallas-Hickory-Polk County Medical Society was held at Fair Play at 3:00 p. m.

The president, Dr. A. S. Johnston, Wheatland, appointed a committee of three physicians from each county to meet with their respective local Federal Relief Committees to formulate a basis of medical care for the indigent.

Election of officers was postponed until the next meeting.

The scientific program was furnished by Dr. Jabez N. Jackson, Dr. F. M. McCallum and Dr. John Ogilvie, Kansas City, through the courtesy of the Postgraduate Committee of the Missouri State Medical Association.

Dr. Jackson presented a masterly discussion on "Cancer of the Breast"; Dr. McCallum presented an interesting paper on "Tumors of the Bladder," and Dr. Ogilvie presented an excellent paper on "The Function and Diseases of the Gallbladder."

Dr. C. H. Brown, Fair Play, the host, entertained at a quail dinner at the completion of our scientific program.

Sixteen members, twelve members' wives and four guests were present at the dinner. Among our guests was Dr. H. A. Lowe, Springfield, Councilor for the thirty-first district. He spoke very highly of the type of programs and interest held by our Society.

J. L. Johnston, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order at 8:10 p. m., December 5, with 26 members and two visitors present.

Mr. E. H. Bartelsmeyer, assistant secretary of the Missouri State Medical Association, explained the procedure to obtain medical fees for the care of the indigent sick from Government funds. The president appointed a committee of four with Dr. L. C. Chenoweth, chairman, and Drs. O. T. Blanke, R. M. James and W. S. Loveland, Joplin, to draw up plans and make contact with local relief fund representatives of the Federal Government.

A motion was made that the rules of the Society be suspended and that the secretary cast a unanimous vote for Dr. E. D. James, Joplin, for president for the ensuing year. Motion carried and the secretary was so instructed. Other officers elected were: Vice president, Dr. W. S. Loveland, Joplin; secretary, Dr. Paul W. Walker, Joplin; treasurer, Dr. H. D. McGaughey, Joplin, and Dr. J. L. Sims, Joplin, was reelected censor to serve the three year term. Dr. L. C. Chenoweth, Joplin, and Dr. J. E. Douglas, Webb City, were elected delegates to the State Convention with Dr. L. B. Clinton, Carthage, and Dr. B. E. DeTar, Joplin, alternates.

Following the election of officers the president called on Dr. R. M. James to present Mr. Del Martz of the Mead-Johnson Company. Mr. Martz showed moving pictures of obstetrical subjects that were very interesting and instructive.

Meeting of December 20

It was moved and seconded that there be a committee appointed by the president to arrange for a dinner meeting to be held at the time of the installation of officers.

Dr. L. C. Chenoweth, Joplin, chairman of the committee on fees from indigent patients, reported that no contact has yet been made with local representatives of the Government relief. Dr. Chenoweth read excerpts from a tentative plan for collection of such fees and who is to receive such service. The report was generally discussed. A motion was made and seconded that the Society go on record as accepting the plan as read by the committee for the care of indi-

gent sick and the collection of fees from Government relief funds. The motion carried.

Dr. L. C. Chenoweth reported a patient with a large collection of pus under right knee cap. The patient gave a history of having a bullet under the patella for 26 years.

Dr. E. D. James, Joplin, reported a similar case.

Dr. S. H. Miller, Joplin, reported an unusual case of a woman who appeared with a tack in her right ankle which she claimed she had swallowed 32 years before.

Dr. Barson reported the removal of portion of a knife blade from the face of a patient which was claimed had been the site of a wound for several years.

Dr. D. R. Hill, Joplin, reported a case of lysol poisoning treated with a large dose of alcohol. Patient is improving.

Dr. R. M. James, Joplin, reported a case of a double vagina in a patient 17 years old.

Dr. B. E. DeTar, Joplin, reported a very interesting case.

Paul W. Walker, M.D., Secretary.

JOHNSON COUNTY MEDICAL SOCIETY

The Johnson County Medical Society at its regular meeting, December 13, assisted by the Woman's Auxiliary, entertained at dinner in the Hotel Ester in Warrensburg the members of the Lafayette County Medical Society and Woman's Auxiliary.

Dr. H. F. Parker, Warrensburg, president, acted as toastmaster and gave an entertaining and cordial address of welcome to the visitors from Lafayette County.

Dr. C. T. Ryland, Lexington, president-elect of the Missouri State Medical Association, gave a splendid and instructive talk on the "Relations of the Woman's Auxiliary and the Medical Profession."

Mrs. Lightner, Odessa, the incoming president of the Woman's Auxiliary of Lafayette County entertained the meeting with a couple of original poems which were beautiful in sentiment and composition.

Mrs. W. E. Martin, Odessa, president of the Lafayette County Auxiliary, in her usual pleasing manner, responded to the toast "The Doctor's Wife."

Dr. O. B. Hall, Warrensburg, gave a short talk upon "The Bright Side of a Physician's Life."

Dr. Ralph C. John, Corder, responded to the request of the toastmaster to make a few remarks and gave a nice appreciation of the fellowship extended him as a new member of the County Society by the doctors of Lafayette and Johnson counties.

True to his usual form of comradeship as a "hale fellow well met" Dr. W. H. Braecklein, Higginsville, gave a very instructive address upon the accomplishments of the medical fraternity.

Dr. L. J. Schofield, Warrensburg, in a vein of good humor and pleasing phraseology gave a bit of history coupled with some happy possibilities of the medical doctor.

Mrs. Wm. R. Patterson, Warrensburg, responded to a toast "To the Doctors" and a greeting to the visiting ladies from Lafayette County.

The president of the Woman's Auxiliary of Johnson County, Mrs. W. R. Patterson, Warrensburg, gave an excellent address of welcome and appreciation of the life and efforts of doctors.

At the close of the banquet and social festivities the Johnson County Medical Society was officially called to order by the president and the following officers were elected for 1934: President, Dr. J. T. Anderson, Warrensburg; vice president, Dr. W. E. Johnson, Warrensburg; secretary-treasurer, Dr. O. B. Hall, Warrensburg; delegate to the state meeting, Dr. H. F. Parker, Warrensburg, and alternate, Dr. J. T. Anderson, Warrensburg.

Forty-one were present at the meeting.

This is the second year that the societies have met togther each holding monthly meetings two weeks apart. Visiting doctors are always welcome.

O. B. Hall, M.D., Secretary.

LAWRENCE-STONE COUNTY MEDICAL SOCIETY

The Lawrence-Stone County Medical Society met at the Mount Vernon State Sanatorium at 8 p. m., November 28. The members of the surrounding county societies were invited and the meeting was also open to the general public.

The scientific program was presented by Dr. Dudley Robnett, Columbia. His topic was "The Early Diagnosis of Skin Cancer." The talk was illustrated by numerous lantern slides.

Dr. M. Pinson Neal, Columbia, gave a short talk on "The Place and Importance of the General Practitioner in His Community." Both papers were well received.

Meeting of December 19

The Society met at the office of Dr. J. W. Smith, Aurora, Dr. J. B. Stokes, Mt. Vernon, presiding.

Members present were: Drs. J. B. Stokes, R. H. Runde, S. P. Child and D. J. Silsby, Mt. Vernon; Drs. R. D. Cowan, J. W. Smith and V. T. Bickel, Aurora; Drs. H. L. Kerr and J. C. R. Doggett, Crane; Dr. L. M. Lyons, Pierce City, and Dr. J. J. Stocker, Marionville.

The scientific paper for the evening, "Two Methods of Handling Normal Labor," was presented by Dr. J. J. Stocker, Marionville.

Officers for the year 1934 were elected as follows: President, Dr. J. W. Smith, Aurora; vice president, Dr. L. M. Lyons, Pierce City; secretary and treasurer, Dr. V. T. Bickel, Aurora; delegate, Dr. H. L. Kerr, Crane, and alternate delegate, Dr. J. B. Stokes, Mt. Vernon.

Dr. Stokes spoke with pride of the interest shown by the Society and of the good attendance shown at its monthly meetings.

V. T. Bickel, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society was called to order at the St. Francis Hospital, Maryville, December 6, by the president, Dr. Robert C. Person, Maryville.

Members present were Dr. Joe M. Boyles, Conception Junction; Dr. B. F. Byland, Burlington Junction; Dr. Charles D. Humberd, Barnard; Dr. Chas. W. Kirk, Hopkins; and Drs. Chas. T. Bell, Hiram Day, Leslie E. Dean, Loren E. Egley, Wm. R. Jackson, Robert C. Person, Jack Rowlett, and Wm. M. Wallis, Jr., of Maryville. Guests present were Dr. F. R. Anthony, Maryville; Dr. S. E. Simpson, Stanberry; Dr. M. A. Mulvanae, Fairfax; Drs. C. Edgar Virden and Emsley T. Johnson, Kansas City; and Drs. Earl Braniger, Jesse Miller, and H. L. Stinson, dentists, of Maryville, and three sisters from the Hospital staff.

Dr. Dean moved that the annual dues be reduced from $12 to $10 for the year of 1934. There was no second to the motion.

The scientific program for the evening was a "Symposium on Gallbladder Disease" presented by

the guests from Kansas City who had come through the courtesy of the Postgraduate Committee of the Missouri State Medical Association, and represented the staff of St. Joseph's Hospital, Kansas City.

Dr. C. Edgar Virden presented "Roentgen Ray Findings in Gallbladder Disease," and gave special attention to recent developments in the technic of gallbladder visualization. His lecture was illustrated by a carefully chosen series of radiographs.

Dr. Emsley T. Johnson discussed "Pathological Findings in Gallbladder Disease" in general, and showed museum specimens in illustration of his paper.

These essays were discussed by Drs. Dean, Egley, and Mulvanae.

Chas. D. Humberd, M.D., Secretary.

PEMISCOT COUNTY MEDICAL SOCIETY

The Pemiscot County Medical Society met at the Majestic Hotel, Caruthersville, at 1:30 p. m. January 2.

The meeting was called to order by Dr. J. W. Johnson, Hayti, president, and the following members were present: Drs. G. W. Phipps, J. R. Pinion, J. B. Luten, F. L. Ogilvie, Caruthersville; Drs. J. W. Johnson, and W. R. Limbaugh, Hayti, and Dr. L. E. Cooper, Coutre. Dr. Claude McRaven, Marston, and Drs. Bishop and Holder, dentists, Caruthersville, were visitors.

A letter was read from Dr. E. J. Goodwin, Secretary of the State Medical Association, regarding emergency relief for the indigent sick. After discussion by all members a committee was appointed to secure further information from the county chairman.

The following officers were elected for 1934: President, Dr. L. E. Cooper, Coutre; vice president, Dr. G. W. Phipps, Caruthersville; secretary-treasurer, Dr. W. R. Limbaugh, Hayti; delegate, Dr. J. W. Johnson, Hayti, and censors, Drs. J. R. Pinion, J. B. Luten and G. W. Phipps, Caruthersville.

W. R. Limbaugh, M.D., Secretary.

RAY COUNTY MEDICAL SOCIETY

A reorganization of the Ray County Medical Society was held at 8:00 p. m. December 12, at the offices of our president, Dr. L. B. Greene, Richmond.

Dr. O. S. Pate, Orrick, was elected to membership.

Officers were elected for the coming year as follows: President, Dr. Harry M. Griffitth, Richmond; vice president, Dr. O. S. Pate, Orrick, and secretary-treasurer, Dr. I. E. Goldberg, Polo.

Plans for the future were informally discussed with the view of placing the Ray County Medical Society back into the fold of the active societies of the state.

I. E. Goldberg, M.D., Secretary.

STE. GENEVIEVE COUNTY MEDICAL SOCIETY

The Ste. Genevieve County Medical Society held its annual meeting December 13 with the president, Dr. J. A. Wilkins, St. Marys, in the chair. All the members were present.

A card from Perry County Medical Society informed the Society that Dr. O. A. Carron had become a member of that Society on transfer from the Ste. Genevieve County Medical Society.

Election of officers resulted in the present officers being retained for the coming year, viz.: President, Dr. J. A. Wilkins, St. Marys; vice president, Dr. Geo. M. Rutledge, Ste. Genevieve; secretary-treasurer, Dr. R. W. Lanning, Ste Genevieve; delegate (2 years), Dr. A. E. Sexauer, Ste. Genevieve, and alternate, Dr. C. J. Clapsaddle, Ste Genevieve. Board of Censors: Dr. A. E. Sexauer, Ste. Genevieve (3 years); Dr. R. C. Lanning, Ste. Genevieve (2 years), and Dr. C. J. Clapsaddle, Ste. Genevieve (1 year), to fill out unexpired term of Dr. O. A. Carron.

R. W. Lanning, M.D., Secretary.

VERNON-CEDAR COUNTY MEDICAL SOCIETY

The Vernon-Cedar County Medical Society met at State Hospital No. 3 in Nevada, December 18.

The weather was inclement but a goodly group were present to hear Dr. M. P. Neal, Columbia, and Dr. E. E. Glenn, Springfield.

Dr. Neal discussed "Pneumonia, Its Cause and Complications."

Dr. Glenn gave a detailed description (clinical) of "The Tuberculin Test."

Both essayists were masters of their subjects making a real team.

It was unanimously agreed that the Vernon-Cedar County Society would have its meetings monthly jointly with Bates County during 1934. The next meeting will be held at Butler, January 18.

The 1934 officers were elected as follows: President, Dr. W. L. Davis, Nevada; secretary, Dr. E. H. Liston, Nevada; delegate, Dr. J. W. Dawson, Eldorado Springs, and alternate, Dr. Forest L. Martin, Nevada.

E. H. Liston, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met at the Young Hotel at Mansfield, December 28, at 2:30 p. m., with the following members present: Dr. J. A. Fuson, Mansfield; Dr. R. M. Norman, Ava; and Dr. H. G. Frame and Dr. A. C. Ames, Mountain Grove. J. O. Foley, a pharmacist of Mountain Grove, was present.

The president and vice president both being absent the meeting was called to order by the secretary and Dr. Frame was elected president pro tem.

There was an informal discussion of the subject of C. M. T. C. examinations, some of the members feeling that such examinations were too heavy a burden to be asked of the medical profession without compensation, but the matter was dropped without any formal action.

An informal discussion of the subject of Federal relief for indigent patients followed. Some thought it best to confer with the chairman of the county Federal Emergency Relief Administration so that compensation may be obtained for treating patients on the relief rolls, but others thought it would involve more red tape than it would be worth. It is probable, however, that some of our members will try to profit by the opportunity to get a share of the relief funds, instead of allowing them all go for other purposes no more worthy.

On the question of diphtheria antitoxin for treatment and toxoid for immunization of indigent children, it was suggested that the secretary write to the State Board of Health to learn if these could be obtained from there free.

Whereas so many of our members have died in the twenty years since our Society was organized, and

so few new men have come into our territory to take their place that our number has been so reduced that we can seldom have an attendance large enough to make meetings profitable, it was informally decided to make overtures to the Howell-Oregon-Texas County Medical Society looking toward a union of our Society with theirs, that we may have larger and more profitable meetings.

This was the regular time for election of officers but due to the small attendance and the possibility of a union of societies no election was held.

A. C. Ames, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

12th Annual Meeting, Cleveland, June 11 to 15, 1934

President, Mrs. James Blake, Hopkins, Minnesota.
President-Elect, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

10th Annual Meeting, St. Joseph, May 8 to 9, 1934

State Directory 1933-1934

Advisory Counsel, Dr. J. F. Harrison, Mexico.
President, Mrs. Hudson Talbott, St. Louis.
President-Elect, Mrs. Wm. H. Goodson, Liberty.
Treasurer, Mrs. Paul Cole, Springfield.
Recording Secretary, Mrs. Stanley P. Howard, Jefferson City.
Corresponding Secretary, Mrs. Frank L. Davis, St. Louis.
Auditor, Mrs. O. H. Callaway, Nevada.
1st Vice President, Mrs. Ola Putnam, Marceline.
2nd Vice President, Mrs. James Stowers, Kansas City.
3rd Vice President, Mrs. Wm. R. Patterson, Warrensburg.
4th Vice President, Mrs. G. B. Schulz, Cape Girardeau.
Directors, one year: Mrs. Wilbur Baker, Kansas City; Mrs. Reuben Barney, Chillicothe; Mrs. James N. Barger, Albany; Mrs. E. L. Johnston, Concordia.
Directors, two years: Mrs. Otis O. Ash, Moberly; Mrs. Geo. A. Aikin, Marshall; Mrs. W. C. Cheek, Springfield; Mrs. Clarence A. Good, St. Joseph; Mrs. Francis Reder, St. Louis.

Chairmen of Standing Committees

Program—Mrs. David S. Long, Harrisonville.
Hygeia—Mrs. John Zahorsky, St. Louis.
Revisions—Mrs. C. T. Ryland, Lexington.
Essay-Contest—Mrs. Wm. H. Goodson, Liberty.
Public Relations—Mrs. Floyd H. Spencer, St. Joseph.
Finance—Mrs. R. C. Haynes, Marshall.
Press and Publicity—Mrs. M. P. Overholser, Harrisonville.
Archives—Mrs. M. Pinson Neal, Columbia.
Legislation—Mrs. A. H. Baldwin, Pleasant Hill.

National Chairmen in Missouri

Program—Mrs. A. B. McGlothlan, St. Joseph.
Public Relations—Mrs. David S. Long, Harrisonville.
Historian—Mrs. Willard Bartlett, St. Louis.

Organized Counties and Presidents

Boone.....Mrs. M. P. Neal, Columbia
Buchanan.....Mrs. C. A. Werner, St. Joseph
Cass.....Mrs. H. A. Brierly, Peculiar
Cape Girardeau.....Mrs Paul Williams, Cape Girardeau
Clay.....Mrs. C. H. Suddarth, Excelsior Springs
Cole.....Mrs. David Enloe, Jefferson City
Greene.....Mrs. J. F. Leslie, Springfield
Jackson.....Mrs. Noah Adams, Independence
Jasper.....Mrs. B. A. Dumbauld, Webb City
Johnson.....Mrs. W. R. Patterson, Warrensburg
Lafayette.....Mrs. W. E. Martin, Odessa
Linn.....Mrs. Ola Putnam, Marceline
Livingston.....Mrs. H. M. Grace, Chillicothe
Miller.....Mrs. G. D. Walker, Eldon
Randolph-Monroe....Mrs. L. O. Nickell, Moberly
St. Louis (city).....Mrs. Walter Kirschner, St. Louis
St. Louis (county)...Mrs. F. J. Canepa, St. Louis
Saline.....Mrs. L. S. James, Blackburn
Tri-County.....Mrs. J. A. Crockett, Stanberry
Vernon-Cedar.....Mrs. T. B. Todd, Nevada
26th District.....Mrs. W. H. Brewer, St. James

The State Essay-Contest is an important and valuable Auxiliary enterprise. That all readers of this page may know definitely about it the Essay-Contest chairman for this year, Mrs. W. H. Goodson, writes:

For the second time the Missouri Auxiliary is sponsoring an essay contest for the pupils of the senior and junior high schools in the state. The value of such a contest in interesting people in the importance of that "vital but nebulous thing called public health" is hard to estimate. In every home where a child writes an essay for the contest his family and his friends know about it; in every schoolroom where there is a contestant, the other children are interested and the essay information is discussed in their homes. This publicity concerning the contest and that given so cheerfully by the newspapers, makes the entire community conscious, not only of the contest, but of the Auxiliary and its purpose.

The subject of this year's essay-contest is "What the National, Local, and State Governments Are Doing for Health." The essays are to be from 1500 to 2000 words for senior high schools and from 750 to 1000 for the junior high schools. The State Auxiliary has offered prizes of $10 and second prizes of $5 in each group. Each county auxiliary is asked to offer its own prizes. The Clay County Auxiliary is offering prizes of $3 and $2 in each class. All essays must be typewritten and the best one from each group must be sent to the essay-chairman, Mrs. W. H. Goodson, Liberty, by the first of April.

The Auxiliary of St. Joseph, of which Mrs. C. H. Werner is the president and Mrs. A. B. McGlothlan is essay chairman, has had the essay contest made a school project. This means that every child in the senior and junior high schools of St. Joseph will write an essay.

Last year essay contests were held in twelve counties and over 400 essays were completed; this year the goals are:

1. An essay contest sponsored by each auxiliary.
2. At least 500 essays completed and handed in by April first.
3. A program on this subject in each auxiliary.

The state essay-contest chairman will gladly answer all questions as to information, source of material, essay requirements and prizes.

From the Missouri-resident, national historian, Mrs. Willard Bartlett, St. Louis, comes the following outline of this year's objectives of that department:

1. To make such additions to the assembled record as seem significant and can be verified.
2. To tabulate a list of references.
3. To organize the state and county historians as a department, providing information and instruction for their guidance in order to stimulate, expedite and dignify the work to the end that the history of every state and county may be compiled and recorded before the next annual meeting.
4. When feasible and approved by the president, the board and advisors, to publish a comprehensive outline of the national history and records of the first eleven years with significant data of each state, in booklet form, and in a manner to be self liquidating, that is by paid advertising.

BOOK REVIEWS

Diet and Dental Health. By Milton T. Hanke. Chicago: The University of Chicago Press. 1934. Price $4.00.

This monograph records the three and one half year research project conducted at Mooseheart, Illinois, on 450 normal children. During this period a research staff of the Otho Sprague Memorial Institute at the University of Chicago, under the direction of Dr. Hanke, studied the dietary habits of the children of this model institution in collaboration with the members of the Chicago Dental Research Club and the staff dentists and physicians of Mooseheart to determine what effect the diet played in the etiology and treatment of dental caries, gingivitis, and, in general health of the children as well. The children, in this novel study, served as their own controls, in that the diet remained unchanged during the course of the first year of observation. During the second year citrus fruit juices in large amounts were administered, and during the third and the last half year small amounts of citrus fruit juices (3 oz. daily) were administered.

The findings of the University of Chicago group were recorded entirely objectively by means of actual color photographs of each child, roentgenograms of the teeth and the wrists (the latter to determine the anatomical age and the rate of long bone growth), calcium and phosphorus determinations and bacteriological studies of the various oral cavities. The complete blood chemistry and oral bacteriology of each of the 450 children at each examination are given in the voluminous tables appended to the monograph.

The research workers found that during the test period the dental caries process was arrested in 50 per cent of the cases where caries had been rampant during the first year of the unsupplemented diet, and gingivitis disappeared only to return in a number of cases when the antiscorbutic intake was reduced.

The remarkable increase in height in the large group (450) during the second year, or test period, leads the authors to conclude that the citrus fruit juices provide a unique and positive factor for growth stimulus in children between the ages of eight and eighteen.

Little theory, but truly objective findings, make this monograph a most valuable contribution to the biological evaluation of certain nutritional factors. Although the title would indicate that this book is chiefly of interest to the dentist, the physician will find it equally interesting and valuable as the excellent and faithful color reproductions of pathological conditions in the oral cavity will give him a cue to diagnosis of certain conditions hitherto left to his dental confrere.

"Diet and Dental Health" is a book that should be in the hands of every physician and dentist and public health worker.

Frontiers of Medicine. By Morris Fishbein, M.D., editor *Journal American Medical Association* and *Hygeia,* the Health Magazine. Baltimore: The Williams & Wilkins Company in cooperation with The Century of Progress Exposition. 1933. Price $1.00.

The Century of Progress Series presents in neat small volumes by well known authors the essential features of those fundamental sciences which are the foundation stones of modern industry. The editor of the *Journal of the American Medical Association* has contributed this volume upon the Progress of Medicine. The first half of the book is devoted to the neatly told story of the medical heroes from Hippocrates to Ephraim McDowell. The author then gets down to the real tale of the last hundred years (averred by some to be the hardest) using Beaumont as the century stone, Chicago, American Medical Association headquarters, Century of Progress and Fishbein. By the way, there is a fine original oil painting of Dr. Ephraim McDowell in the home of a descendant at Hamilton, Missouri, that was brought to my attention by Dr. Booth of Hamilton. You cannot purchase it. I tried.

The witty Fishbein, but without his vaunted Pepys lingo, has picked out the high spots of the last century of medicine and produced an interesting book. The question is how to get people to read it. Those intelligent enough to select such a book probably do not need to read it. Transposed, those who were given the book would probably not have enough intelligence to appreciate it. Some day some one is going to introduce medicine to the masses via the comic strip. Speaking of introducing science to the masses, the Century of Progress does this splendidly. The Hall of Science devotes such an amount of space to medicine that one wonders if it is the exhibit of the American Medical Association. It is doubtful if modern medical science could have been better interpreted and enjoy a better appreciation.

Fishbein tells the tale, if you cannot get to Chicago and the Century of Progress. E. H. S.

Nouveau Traité de Médecine. Fascicule X, Pathologie de L'Appareil Circulatoire (Coeur et Vaisseaux) Tome 11. G. H. Roger, Fernand Widal, P. J. Teissier. 120, Boulevard Saint-Germain, Paris (VI). Masson Et Cie. Price 115 Franks. 1933.

This study of the heart and blood vessels is contained in three large volumes, totaling together some 2491 pages. The volumes are bound in board and the paper is of a heavy calendered type. Therefore the books are rather heavy to handle.

This work is so encyclopedic that it might be used as the corpus for the examination of those who are about to set themselves up as specialists on the heart and blood vessels.

The chief author of the first volume is R. Lutembacher, but we see also the names of other well known French authors. For example, Teissier et Prieur writes on methods of the examination of the heart; Bordet on radiology; Coste on shock; Dumas on angina pectoris; Giraud on tests of cardiac efficiency.

In the second volume we note other names, such as that of M. Mouquin who writes on endocardial infection and valvular disease; also the name of Paul Durand who writes on lesions of the pulmonary orifice; H. Rouvierè who writes on congenital malformations in the development of the heart. E. Pichon writes a special article under the heading, a study of congenital malformations. L. Bethoux writes on traumatism of the heart. F. Deve writes on parasites of the heart. Giraud writes on syphilis of the heart, aneurysms of the walls of the heart, coronary obstruction, infarcts of the myocardium, troubles of the intramyocardial circulation and lesions of the aortic orifice.

In the third volume, the volume covering the disease of the vessels, we find the section on the pathology of the aorta and the pulmonary artery written by L. Gravier of Lyons. Aneurysm of the aorta is given a separate section written by A. Goyet. Dumas writes a section on the affections of the pulmonary artery. A section on arterial tension is written by Dumas. The arteritides in general are covered by Courcoux and Lelong. The pathology of the venous system is described by Gaugier. The special section on phlebitis is by Legry.

The illustrations are quite adequate, some of them being in color.

In leafing through these volumes your reviewer's attention was drawn to the discussion of "mean tension" in Dumas' article on arterial pressure. This "mean" pressure shows best on the curve of the graphic instruments, such as that of Plesch or the Tycos. This determination has not yet been much discussed in America. Yet it does seem to afford, as your reviewer can testify, a valuable sign as to the location of some abnormal condition in the vascular system. That is to say, even in cases of normal maximum and minimum pressures, one may often find a disturbed "mean" pressure and the evidence of pathological changes of which the physician should take note.

It would be presumptuous on the part of a reviewer living in an inland city of the United States to pass on the merits or demerits of such a work. One can only repeat what has been said about other volumes of this series, that it represents the standard French viewpoint, and that this viewpoint should be studied by those of the American physicians who pretend to be specialists in their departments and who wish to know what the rest of the world is doing. G. H. H.

Obstetrics and Gynecology. By 80 leading specialists. Edited by Arthur Hale Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School; chief of the Gynecologic Service, Passavant Memorial Hospital, Chicago. With 1664 illustrations. Volume I. Philadelphia and London: W. B. Saunders Company. 1933. Price $35.00.

The first volume of "Obstetrics and Gynecology" contains about eleven hundred pages of fine printing and illustrations. In the introductory chapter Dr. Franklin Martin says that "such an encyclopedic work should become an inspiration to the specialist, a guide to the practitioner and a model for the teacher." Truly so, for the book contains monographic papers from the best obstetricians and gynecologists in the country. Nothing so comprehensive in this specialty has been previously attempted in this country and the work is on a plane equal to the "Biologie and Pathologie des Weibes" which appeared in 1924.

In the first volume the section on anatomy is clear and concise in the subject matter. The drawings are original and show much originality in execution. The bony pelvis is described by Adair and deals not only with the human side of obstetrics but presents most interesting details concerning phylogeny.

Doctor Novak of Johns Hopkins writes on the "Physiology of Menstruation" and in this field he is without a peer. Again Doctor Novak in collaboration with Doctor Hartman describes the newer concepts of the role of the endocrine glands in pregnancy and ovulation. Though much of our knowledge of the endocrine system is in a state of flux, the sound ideas and statements in this chapter can be depended upon for some time.

Chapters on the diagnosis of pregnancy and conduct of normal labor are practical as well as highly scientific and they reflect the ideals of the profession.

Dr. Irving Cutter has contributed the chapter covering the historical development of obstetrics and gynecology in America, Great Britain, France and Germany. Beautifully written and illustrated, this chapter is a mine of information and sets the mind of the reader in a receptive mood for the other fine reading to follow.

The section on the pathology of pregnancy by Mussey and Randall is replete with clinical aspects of the pregnancy diseases and theory has been relegated to the background.

The editor, contributors and publisher are to be congratulated on the magnitude and completeness of this great undertaking and when completed it will be a landmark in obstetrics and gynecology. D. T. V.

Criteria for the Classification and Diagnosis of Heart Disease. By the Criteria Committee of the Heart Committee of the New York Tuberculosis and Health Association, Inc.: Joseph H. Bainton, M.D., Arthur C. DeGraff, M.D., Robert L. Levy, M.D., Harold E. B. Pardee, M.D., Chariman. Approved by the American Heart Association. Third edition. New York, New York Tuberculosis and Health Association.

About ten years ago a group of physicians interested themselves in a plan for general improvement in the diagnosis of heart disease. They decided first on a standard name for the diagnosis of a given disease, hence the nomenclature. Then followed a broadening of the idea of a simple diagnosis only to that of one having qualifications indicating cause, structural change, physiology and functional capacity. In order to have this carried out satisfactorily by clinicians they formulated two sets of charts, one an abridged form of the other. The more comprehensive chart was designed for physicians having at hand facilities for making extended examinations who not only wished to make a diagnosis but in addition to have it recorded in a standard manner, facts about patients which could subsequently be subjected to critical analysis. While this was going on there were developing various instrumental aids such as the roentgen ray and the electrocardiograph which in turn soon demonstrated that they too needed standard nomenclature and methods of examination. The next logical step was to establish general criteria for diagnosis under which would come all methods of examination to the end that finally there would emerge a balanced diagnosis. Such is the purpose of this book.

Under etiological diagnoses it is stated that thyroid poison enlarges the heart and this has been the accepted view until very recently when this position is being assailed by investigators using quantitative methods of analyses with control groups by decades. Trauma has been included as a cause of heart disease, which has far-reaching compensation implications. In the anatomical diagnosis the electrocardiogram is used "as an aid in appraising the nature and extent of structural changes in the myocardium." There is a useful table suggesting desirable terms to be used in describing heart sounds and murmurs. Methods of determining whether by ordinary physical examination a heart is enlarged are described and

in this connection it is to be noted that a carefully measured midclavicular line has supplanted the time-honored nipple line as a fixed point. The teleroentgenogram or orthodiagram will give reliable measurements providing a standard technic has been rigidly followed and the figures correlated with age, height and weight. Even then there are normal hearts whose size deviates upward from the predicted figure and it may be added there are hearts normally small which become enlarged from disease but their measurements reside well within a 10 per cent plus or minus deviation from the prediction. The cardiothoracic ratio actually measured or visually estimated in a film is not at all reliable for stating that a heart is enlarged or not, due largely to variations in type of patient. It is pointed out that there are hearts in which from the film alone it is difficult to differentiate between dilatation and pericardial effusion, something to be remembered if a puncture is contemplated. Nowhere in the book do we see the old-time "regurgitation" which has been replaced by "insufficiency" and "incompetency." Those of us who have had difficulty in evaluating the significance of an apical systolic murmur will appreciate the criteria on pages 40 and 62. The present day interest in the anginal syndrome and coronary thrombosis suggests that we familiarize ourselves with chest pains that simulate these conditions in view of the prolonged rest treatment insisted upon in treatment. Acute dilatation of the heart as a diagnosis has been expunged. The radiological appendix urges the elimination of such terms as "duck shaped," "mitralization," etc., for they suggest diagnoses of right and left dilatation and it is not unusual to find the same configuration in hypertensive hearts. It is believed, too, that study of the individual chambers by film and fluoroscope is of much more importance than the ascertaining of enlargement alone. However, there is a group of borderline cases in which a study of both configuration and size can give no positive assurance of enlargement.

In practice, following the "criteria" is relatively easy and adds enormously to the grasp the clinician secures not only on the various diagnoses but on prognosis as well and the treatment is practically outlined for him. Clinicians and those interpreting roentgen films and electrocardiograms should alike be guided by a book of this kind. S. L.

Surgical Pathology. By William Boyd, M.D., M.R.C.P. Ed., F.R.C.P. Lond., Dipl. Psych., F.R.C.S., Professor of Pathology, University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Third Edition, thoroughly revised with 477 illustrations and 13 colored plates. Philadelphia and London: W. B. Saunders Company. 1933. Price $10.00.

The old adage that you can't paint a lily is all the "bunk." The writer had occasion not so long since to review "Boyd's Surgical Pathology" arriving at the conclusion that it was a lily. Now Boyd revises this book proving that said flower can be improved by the skillful use of the brush. This book though encyclopedic in scope yet carries within it the current of a personality. One sort of senses Boyd's own personal opinion of the subject. One feels that his secretary did not write it; he did it himself. The book deserves to be placed alongside Ewing's "Neoplastic Diseases" to make the pair the greatest books on pathology in English (hence also in any language). It is impossible to particularize. Each section is treated with such breadth of view that it seems impossible that the author is just a pathologist; it could not have been better done had a surgeon written it. But it is no light reading to be read and cast aside. Every young surgeon should have his own copy and underline such parts as he understands and by carrying it from the operating room to the laboratory, verifying statements from time to time by his own observations, in ten years the knowledge contained therein will have been converted from knowledge to understanding. That then will become his most important tool in the operating room. When all surgeons so train themselves we will be spared the pain of listening to surgeons prating of pathology they have memorized from books, when each time they open their faces they emit voluble gobs of sound which proclaim that their knowledge and understanding are as far apart as the poles. Boyd's book is a laboratory manual. It is designed to help the young surgeon to secure for himself an understanding of disease processes as they pertain to surgery.

A. E. H.

American and Canadian Hospitals. A reference book giving historical, statistical and other information on the hospitals and allied institutions of the United States and Possessions and the Dominion of Canada. Edited by James Clark Fifield with the cooperation of the American Hospital Association. Minneapolis: Midwest Publishers Company. 1933. Price $10.00.

"American and Canadian Hospitals" is the response to the long-felt want of those interested in hospitals for a volume in regard to hospitals which is up-to-date, authoritative and more complete than anything in existence.

This book fully satisfies that need. It is the happy combination of the editorship of James Clark Fifield with the cooperation of the American Hospital Association and all those connected with hospitals who at the expenditure of much time and effort supplied the valuable information which makes up this volume. It contains articles by those in leading positions in the organizations on the American Hospital Association, Council on Medical Education and Hospitals of the American Medical Association, Department of Hospital Service of the Canadian Medical Association, Canadian Hospital Council, American College of Surgeons, Catholic Hospital Association of the United States and Canada, American Protestant Hospital Association, American Nurses' Association, Canadian Nurses' Association, National League of Nursing Education, American Association of Hospital Social Workers, American Sanatorium Association, Association of Record Librarians of North America, and American Occupational Therapy Association.

The information is as full as each hospital is willing to supply and gives all the essential data; in fact from reading the sketch of a hospital one obtains an excellent idea of its size, scope, charges, finances, personnel and rating. To mention only three uses, this book is of the greatest value to those who are going to a new region and wish to learn about its hospital facilities, or who are considering a position in a new hospital, or who are comparing hospitals for any statistical purpose.

This work occupies a uniquely valuable position, and will undoubtedly hold that place until such time after the lapse of years, as it becomes necessary to issue a new and revised edition. L. H. B.

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TUBERCULOSIS IN CHILDHOOD

SAM H. SNIDER, M.D.

KANSAS CITY, MO.

Tuberculous infection in childhood was formerly believed to be rare and nearly always rapidly fatal. Investigations of the last few years have shown this to be an erroneous belief. We now know that tuberculosis is a relatively common infection in childhood and that the condition is usually benign until adolescence. The percentage of children infected with the tubercle bacilli must of course vary largely with age, but if we consider all children it will be found that the percentage of infection varies from perhaps 10 per cent in some rural communities in North America to about 90 per cent in the cities of Europe. It seems fair to state that 30 or 40 per cent of the children of the United States are infected with tubercle bacilli. This infection does not imply the existence of a true pulmonary tuberculosis.

Anatomical Changes.—The disease in children usually does not make an attack on the pulmonary parenchyma except for a primary inflammatory reaction at the site of the first infection. This primary inflammatory reaction is known as the Ghon tubercle, and may result in caseation and calcification, or may end in complete resolution. The lymphatic tissue along the channels draining from this infection to the hilum is usually thickened and there is tuberculous infection with thickening and later calcification in the hilum and mediastinal lymph nodes. The mesenteric and retromesenteric lymphatics often show tuberculous thickening or calcification. In fact, any group of lymphatic glands in the body may be the victims of the tuberculous infection, but the common sites are the abdominal and thoracic lymph nodes. Massive caseation is rare in childhood but discharging sinuses are fairly common in cervical gland tuberculosis. True adult type of pulmonary tuberculosis is relatively rare in childhood and usually carries with it a serious prognosis.

History and Symptoms.—History of exposure to adult type tuberculosis is very important and calls for a careful study of the temperature curve, a tuberculin test and a roentgenogram. The symptoms of childhood tuberculosis are usually inconspicuous, the only common ones being afternoon fever and malnutrition. Cough is not often a striking symptom. Changes in disposition are often striking. The child who in health was docile and playful may become cross and incorrigible to discipline.

Physical Findings.—Physical findings like symptoms are usually inconspicuous. Many of the patients are quite well-nourished and present every appearance of perfect health. This probably accounts for the former belief that tuberculosis was not common among children. Examination of the chest seldom shows any striking findings. The primary inflammatory area is of brief duration and usually not discovered unless it leaves a calcified node which can be discovered by the roentgen ray in subsequent years. The tuberculous thickening of the lymph nodes is not sufficiently massive to produce dullness or changes in breath and voice sounds. The lack of parenchymal involvement results in absence of rales except in the exceptional case which has developed the adult type of tuberculosis. Altogether, it may be said that the history of the present illness and the physical findings give little information.

Tuberculin Test.—The relative paucity of symptoms and physical signs makes the diagnosis difficult and uncertain unless one has resorted to other measures. The most valued of these other measures is the tuberculin test which should be performed by the intracutaneous method of Mantoux, the test being read at the end of forty-eight hours. An inflammatory zone about the site of injection greater than one half centimeter in diameter signifies that infection with tubercle bacilli has occurred. It

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From the University of Kansas School of Medicine.

does not give us definite information as to the duration of the infection nor its extent. False positives are practically unknown but in overwhelming disease or in very recent infection the test may elicit no inflammatory reaction.

Roentgen Rays.—Having made a tuberculin test to determine the presence of infection it is necessary, if such infection is present, to take a roentgenogram to determine the extent of the disease. The roentgen plate may not contain very conspicuous abnormalities, but definite hilum thickening and calcification, or definite localized peribronchial thickening should be regarded as tuberculous if the tuberculin test be positive. The Ghon nodule which is evidence of an old inflammatory infiltration in the parenchyma is often found, but the primary inflammatory reaction has usually disappeared before the plate is made. Resolution may be so complete that no scar remains. The plate should always be read by one who is expert in the study of the chest in children, for the findings although characteristic are not usually conspicuous unless the infection be of the adult type. Children who give a history of contact with a case of tuberculosis of the pulmonary adult type should be studied with the tuberculin test and the roentgen ray plate, for this study gives warning of the presence of infection in its early stage.

Prognosis.—The immediate prognosis of childhood tuberculosis is usually good. The exceptions to this rule are: (1) A few children develop progressive adult type of disease, and (2) an occasional child develops peritoneal tuberculosis or meningeal tuberculosis. In very young children the prognosis is not so good. However, most of the children carry their infection on into adult life without suspecting its presence. Recovery in the majority of cases is complete, but in a small proportion adult tuberculosis supervenes, usually in early adult life. It is not definitely known whether this adult tuberculosis is a direct result of the childhood infection or whether the adult tuberculosis can occur only in the presence of exogenous reinfection. This question has been debated very widely and remains unsettled. Much remains to be said on both sides and it is not the purpose of this paper to enter into the discussion. The fact remains that adult tuberculosis is much more prevalent among the individuals who were victims of childhood infection.

Prophylaxis.—The campaign against tuberculosis then becomes an effort to prevent the infection of children and this prevention involves:

1. Education of the public concerning tuberculosis.
2. Specific education of the adult with tuberculosis as to methods of prophylaxis.
3. Separation of the individuals with a positive sputum from all contact with children if possible.
4. Adequate inspection of dairy herds and pasteurization of milk supplies.
5. Routine tuberculin test and roentgen ray examination of all children who are contacts with adult cases of tuberculosis.
6. Careful treatment of all children who have a childhood type of infection to prevent the development of the adult type of disease.

Children with the juvenile type of infection seldom infect others because they do not often expectorate tubercle bacilli. The source of infection is usually the adult with an open cavity or, occasionally, a contaminated milk supply. Since segregation of all tuberculous adults is not possible at the present time, they must be carefully educated not to kiss nor handle children. I firmly believe that if all kissing of children were stopped the next generation of Americans would see a very striking reduction of mortality from tuberculosis. We are doing our duty very nicely in the inspection of the dairy herds; we are not performing our duties so well in protection against human tuberculous infection. As Myers and Stewart of Minneapolis have said, "So far as tuberculosis is concerned, it is safer to be a calf than to be a child."

Bacillus-Calmette-Guerin.—Using the new knowledge of tuberculosis which we possess our antituberculosis campaign becomes one of searching out the adult cases of tuberculosis and preventing the spread of the infection to children, plus the finding of the tuberculous children and so treating them that they will not become victims of the adult type of the disease. In preventing tuberculosis a new method is offered by Calmette and Guerin of the Pasteur Institute of Paris in the form of Bacillus-Calmette-Guerin. This is a strain of tubercle bacilli which has undergone attenuation through prolonged culture on artificial media. When inoculated into the child's body it seems to produce an immunity without production of manifest tuberculosis. Calmette and Guerin have been working with this preparation since prior to 1921 and many thousands of children in France have been inoculated with the bacillus. The results seem to be very good although some disastrous results were reported in Lubeck, Germany, with a strain of organisms not prepared by Calmette and Guerin. The method should be tried further and judgment should be withheld as to its protective value until time and further administration have given a larger experience in its use.

Treatment.—Treatment of the tuberculous child is largely a matter of common sense. He should be given ample quantities of nourishing food, plenty of fresh air and a relatively large

amount of bed rest. I do not believe that it is necessary in most cases to put the child on absolute bed rest. He should be given plenty of vitamins in the form of cod liver oil or haliver oil, tomato juice, orange juice and fresh vegetables. Forced feeding and straight milk diet are unnecessary. The child should be observed for several years until it is fairly certain that his infection is arrested. This care should be extended beyond the period of adolescence to avoid the danger of a breakdown from the adult type of disease. It is essentially true that "once tuberculous the individual is always tuberculous" but this statement should not be interpreted to mean that the tuberculous individual is doomed to die from his disease. With proper care most of the infected children will make a complete recovery.

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DISCUSSION

Dr. Harry C. Berger, Kansas City: We have just had the good fortune to listen to the presentation of a phase of the tuberculosis problem which to many of us seems to be the crux of the whole matter. We are particularly fortunate in having this presentation. There is nothing to be added to Dr. Snider's discussion, but I would like to emphasize a few of the points he brought out.

One thing he did not stress much but which I have a great deal of trouble with, is impressing my people with the importance of preventing re-exposure of the child who already has a tuberculous infection. It is hard to convince them that tuberculosis is not like measles, or other contagious disease and that the child who has had some tuberculous infection is in much more danger than the child who has never been exposed.

We must be very careful to distinguish between infection with the tubercle bacillus and the disease tuberculosis. We have to use a good deal of tact in dealing with these children if we are to get their cooperation. Dr. Snider said of a good many of the cases he discussed that the people were much alarmed —one child coming from New York who had a tuberculous infection, and his people were very much broken and expected the very worst. But that seldom happens. A sane handling of these children gives us an opportunity to get perhaps a perfectly well child.

The suspicion of tuberculous infection in these children is often based on the history, at least the history of exposure. I think that is a most important point. That is one reason why it is so very important to get these children with tuberculous infection, not only on their own account, but in locating through them a source of infection which is still open and a menace to the community.

The symptoms are quite different in the childhood type of tuberculosis from the adult. Weight means very little. We have a lot of robust children who are up in weight who are coming in with terrific tuberculin reaction. The child complains of undue fatigue. Dr. Snider says they have a bad disposition. If a child has a bad disposition it is almost always due to undue nervous fatigue, and that is the outstanding thing that should send us on the quest of this infection. That child is entitled to the tuberculin reaction, roentgen ray examination and a sane routine if he shows any trouble of that kind.

Dr. George H. Hoxie, Kansas City: In the few minutes given us there is very small chance of covering all the ramifications of this subject, for I agree with the last speaker that childhood tuberculosis is the crux of the tuberculosis problem. Therefore I will confine my remarks to three points:

First, that in using tuberculin tests we should use methods which will give us uniform and standardized results. Tuberculin is too potent and the significance of the reactions too much in disagreement for us to use it carelessly. In intradermal tests the method

should be exact, the quantity used should be exact and the readings based on exact measurements in order that we may compare reactions one with another. In the Kansas City open air schools we are using 1/100 milligram of old tuberculin for these tests.

The second thing I would like to bring out is that in our open air work in Kansas City we find that upper respiratory infection is our greatest problem. It seems to set on fire latent tuberculous infections which might otherwise lie dormant. We believe that the first thing to do in treating and preventing tuberculosis in children is to quiet or get rid of the infections of the sinuses and nasopharynx. This is hard to accomplish. But it is worth while. Therefore we should not content ourselves with a negative or nihilistic therapy. We should insist on active treatment. The drainage of the upper respiratory tracts as well as the stimulation of immunity need both to be planned and worked.

The third point is prevention of the disease. It is interesting to read the current literature on early diagnosis. Rarely do I see an answer to the question: What shall we do with the contact children after we have made the diagnosis? I believe that we should put every one of these children in open window school rooms where the number of pupils will be less, the pressure of the curriculum less, and the amount of rest and food increased. We believe, in fact, that the development of the open air rooms is the most important change in our public school system in the last twenty years. They have fallen into disuse in some places because the school authorities have tried to substitute the will for the deed. They are like the boy who was asked if he could play the flute. He said he did not know for he had never tried. With the same reasoning it seemed to be sufficient in the minds of some reformers or uplifters to put open air rooms into the school buildings and then trust the Lord to run them. Such authorities will put into such rooms anybody who shows interest in the subject without considering the necessity for training. We feel that a great deal of the weakness of the open air system has been because of lack of training of the teachers and nurses, and lack of knowledge on the part of the school authorities as to what was needed. In spite of this I believe that more open air rooms should be established. The children who are found in tuberculous homes should be taken out of the fifty-pupil rooms and given special care; that is—when the contact cannot be removed, and the child must go on living in intimate contact with an open case of tuberculosis. We ought to do something more than merely give periodic health examinations, and that something more in my opinion is to put the child into these special rooms where he can be checked frequently as to the results of his fight against his infection and trained so that he may make a better fight. We should not conceal from him the nature of his disorder, but ask his help and through the child work back to the family to secure a better type of hygiene, better ventilation, better food, better rest. Only in that way do I see some hope for the coming generation.

TREATMENT OF MYELOGENOUS LEUKEMIA

According to U. V. Portmann, Cleveland (Journal A. M. A., Jan. 20, 1934), the technical factors governing the dosage of roentgen irradiation for myelogenous leukemia are relatively unimportant so long as the intensity of the rays is therapeutically effective in the region to which they are applied.

OBSTRUCTION OF VENA CAVA DISTAL TO RENAL VEINS

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AND

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In 1644, Schenck recorded the finding at postmortem examination of obstruction of the vena cava in two instances. Such diagnosis of the condition is still too frequently made, and with this in mind we decided to correlate diagnostic and prognostic data obtained from a review of a selected group of clinical cases and necropsy records from The Mayo Clinic and from cases reported in the literature.

Since our observations were made on the portion of the vena cava distal to the renal veins it should be noted that embryologically the vena cava is derived from the right posterior cardinal vein. The right common iliac vein has a similar origin. The left common iliac vein is a crossed anastomosis between the right and left posterior cardinal veins. As in any anastomosis, variations occur and thus iliac thrombosis often arises from the left iliac vein into the vena cava. The portion of the vena cava below the renal vein is rather firmly fixed and its anterior surface is covered by peritoneum. It is closely associated with the right kidney, vertebra and retroperitoneal tissues. The posterior surface is firmly fixed to the vertebral column so that occlusion readily occurs from pressure anteriorly. The inferior vena cava receives blood from the common iliac, vertebral and right ovarian or spermatic veins. The collateral circulation between the renal veins and the bifurcation of the vena cava is abundant; the channels are divided into deep and superficial. The portions of the circulatory system with which this paper is concerned are illustrated in figures 1 and 2.

For convenience of analysis the cases studied were divided into three groups: (1) Fourteen cases in which a postmortem or anatomic diagnosis had been made in the clinic; (2) nine cases in which a clinical diagnosis had been made in the clinic, and (3) nineteen cases from the literature in which the third portion of the inferior cava had been ligated surgically.

The cases in group 1 are tabulated in table 1. The necropsy and the clinical record were reviewed in an attempt to find evidence of a sequence of events which would justify a clinical diagnosis. The patients were usually past middle life and suffering from a fatal illness. The

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From the Mayo Clinic.

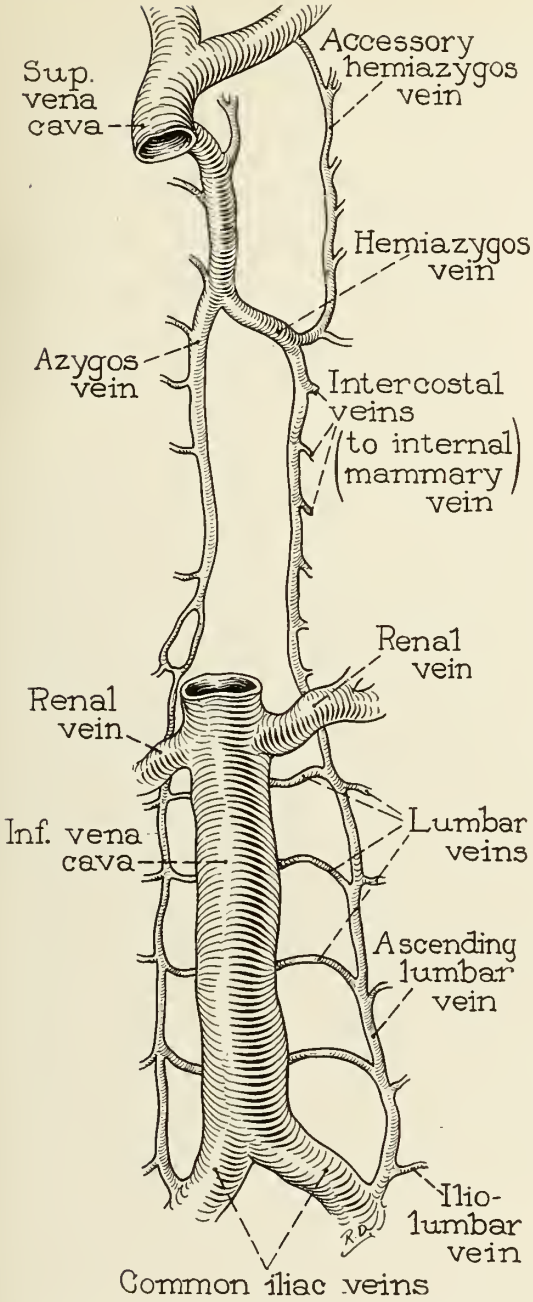

Fig. 1. Part of the collateral circulation that is involved in obstruction of the inferior vena cava. The superior vena cava is cut away to expose the azygos vein.

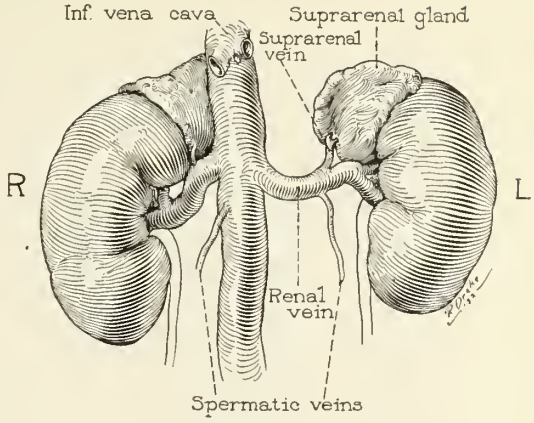

Fig. 2. The renal veins and their tributaries.

patient's blood pressure was elevated in case 13 and that of patients in cases 2, 8 and 9 was low or low normal. There was no collateral circulation. The patient in case 14 was the only one who had cyanosis. The patients in cases 10, 11, 12, 13 and 14 had edema of the legs of rather sudden onset. Most of these patients had been operated on but were well along in their convalescence from the operation before death occurred. In case 14, five days before the patient died sudden pain developed in the umbilical region, followed by cyanosis and edema of the legs and feet. The pain subsided but the edema and cyanosis persisted. This patient also had mesenteric thrombosis. The outstanding sign in this group was the sudden onset of bilateral edema.

The cases in group 2 are tabulated in table 2. The exact site of obstruction of the vena cava was not determined but it is assumed that it was below the renal veins. In cases 1 and 7 thrombophlebitis preceded the obstruction. In case 2, hypernephroma of the right kidney was present. In case 3, two surgical operations had been performed; at the time of the second operation the vena cava was explored and obstruction was found below the renal veins. In case 8, a right inguinal hernia had been repaired and during convalescence edema and cyanosis of the feet and legs developed which was followed by visible collateral circulation. Later in the convalescence empyema developed. In case 9 edema of the left leg was present for three days then edema of the right leg appeared. The sequence of events in this case suggests that the thrombus began in the left common iliac vein and later extended into the vena cava. Visible collateral circulation came on insidiously in all these cases. Cyanosis of the skin peripheral to the obstruction was the next most common observation. Edema was present in about half of the cases. There were no definite subjective symptoms. The patient in case 4 complained of numbness, some aching and general discomfort in the legs; his main complaints, however, concerned the hematuria, a definite cause of which was not found. The blood came from the right kidney. One might assume that the thrombosis was the cause but there was no proof of this. The diagnosis was essential hematuria. As in group 1

Table 1. *Obstruction of the Third Portion of the Inferior Vena Cava*

Case	Age, Years and Sex	Diagnosis	Collateral Circulation	Edema	Cyanosis	Blood Pressure Systolic	Blood Pressure Diastolic
1	33F	Splenic anemia since 1928	None	None	None	110	75
2	40M	Endocarditis, pyelonephritis	None	None	None	90	60
3	22M	Carcinoma of right suprarenal vein	None	None	None	120	80
4	45F	Uterine fibroid tumor	None	None	None	125	70
5	60M	Lymphosarcoma of appendix	None	None	None	120	75
6	18M	Abscess of the liver	None	None	None	115	80
7	53M	Retroperitoneal sarcoma	None	None	None	105	75
8	54M	Carcinoma of esophagus	None	None	None	95	80
9	54F	Diabetes mellitus	None	None	None	100	80
10	56M	Carcinoma of gallbladder with gallstones	None	Of legs	None	115	75
11	63M	Osteomyelitis	None	Of legs	None	140	70
12	45F	Carcinoma of rectum	None	Of legs	None	105	60
13	60F	Hypernephroma	None	Of legs	None	180	100
14	66M	Carcinoma of liver	None	Of legs	Of feet	115	75

there was little discomfort that could be attributed to obstruction of the vena cava. Complete circulatory equilibrium or compensation, as evidenced by the collateral circulation, without edema and cyanosis was not observed. This seems to show that if there is no intra-abdominal pressure, infection, and so forth, the deep collateral channels are adequate in the development of a fully compensated collateral circulation when the lower part of the vena cava below the renal veins is obstructed. However, if the deep channels do not develop to the extent necessary to pass the blood to the upper part of the vena cava, a fully compensated circulation cannot be developed by addition of the superficial channels. A review of the cases in the literature in which surgeons have been forced to tie the vena cava below the renal veins supports this supposition.

The cases in group 3 are tabulated in table 3. In four cases the vena cava was ligated as a therapeutic measure for inflammatory conditions of the pelvis. In more than 50 per cent of the cases, however, surgical procedures had been carried out on the right kidney. Four patients died. Küster was obliged to apply a ligature above the right renal vein (case 1). Fels and Bettinger's patient (case 3) convalesced favorably for twenty-three days, then the ligature cut through the vein. Warnekros' patient (case 4) had edema of the right leg before operation was performed and at the time of the operation there was thrombosis of the right iliac vein up to the vena cava. After the operation the patient's breathing was difficult but somewhat improved. An hour later the breathing and pulse had improved. Four hours after the operation she died from pulmonary emboli. Eight of the patients in this group who survived had edema of the legs; it disappeared after a short time in four of these. Houzel's patient had some edema and venous stasis four years after the operation. Birnbaum's patient had edema of the legs, genitalia and lower part of the abdomen with slight cyanosis. Dannheisser's patient was practically free of edema of the legs one month after operation. Pfaff's patient had definite edema after he had tied the vena cava. Fourteen of the physicians stated that their patients did not have visible collateral circulation. In the other cases definite statements were not made but it was noted that the patient's general condition was satisfactory, which probably indicates that there was no collateral circulation or edema grossly visible.

The nineteen cases in this group demonstrate what happens in man when the inferior vena cava is ligated. Fifteen of the patients sur-

Table 2. *Clinical Diagnosis of Obstruction of the Inferior Vena Cava*

Case	Age, Years and Sex	Diagnosis at Onset of Obstruction	Duration of Symptoms	Collateral Circulation	Cyanosis	Edema	Blood Pressure Systolic	Blood Pressure Diastolic
1	22M	Lobar pneumonia	1 year	Abdomen and legs	Feet	legs	130	80
2	50M	Hematuria; hypernephroma	9 months	Abdomen and legs	Feet	Legs	114	65
3	54M	Fracture of right femur	5 years	Abdomen and legs	Feet	Legs	110	70
4	24M	Hematuria (right)	5 years	Abdomen and legs	Feet	Legs	100	55
5	28F	Mitral endocarditis	Indefinite	Abdomen and legs	Feet	Legs	160	80
6	40F	Influenza	8 months	Abdomen and legs	None	Legs	140	80
7	47M	Right then left pleurisy	3 months	Abdomen and legs	None	Legs	105	60
8	23F	Repair of hernia	4 months	Abdomen and legs	Feet	Legs	95	65
9	48M	Carcinoma of liver (surgical diagnosis)	4 months	Abdomen and legs	Feet	Legs	150	100

Table 3. *Surgical Ligation of the Third Portion of the Inferior Vena Cava (Cases Reviewed From the Literature)**

Case	Author	Diagnosis	Outcome	Edema
1	Küster	Carcinoma of the right kidney	Fatal	
2	Goldman	Tuberculosis of the right kidney	Fatal	
3	Fels and Bettinger	Pelvic thrombophlebitis	Fatal	
4	Warnekros	Pelvic pyemia	Fatal	
5	Dannheisser	Retroperitoneal tumor	Recovery	Present
6	Kohts	Operation on right kidney for (?)	Recovery	Present
7	Costa	Pyonephrosis	Recovery	Present
8	Birnbaum	Pyosalpingitis; abscesses into rectum	Recovery	Present
9	Pfaff	Abdominal cyst	Recovery	Present
10	Houzel	Pyonephrosis	Recovery	Slight
11	Bontini	Lymphosarcoma of the vertebra	Recovery	Transitory
12	Patel and Peycelon	Tuberculosis of the right kidney	Recovery	Transitory
13	Béjan and Cohn	Sarcoma of omental bursa	Recovery	Transitory
14	Heresco	Pyonephrosis	Recovery	None
15	Hartman	Tuberculosis; pyonephrosis	Recovery	None
16	Draudt	Sarcoma of the right renal capsule	Recovery	None
17	Delannay	Tumor of right kidney	Recovery	None
18	Noble	Retroperitoneal tumor	Recovery	None
19	Schröder	Pelvic pyemia	Recovery	None

* Review not complete.

vived; five had persistent edema of the lower extremities. The edema of three patients was transitory. The remaining six patients had no edema. It is significant that none of these patients had visible collateral circulation.

A comparison of groups 2 and 3 brings out significant differences. In group 2 superficial collateral circulation and cyanosis were the chief factors in making the diagnosis. As has been stated, these observations were not made in cases in which the vena cava had been ligated. Thus in cases in group 2 more of the venous system had been obstructed than of the inferior vena cava. In support of this statement it is often observed that in the presence of large pelvic or abdominal tumors, and during pregnancy when there is undoubtedly pressure on the vena cava and the deep veins of the pelvis, superficial collateral circulation may develop. Also, when there is widespread intrapelvic inflammation which causes extensive phlebitis, superficial collateral circulation may become apparent.

DIFFERENTIAL DIAGNOSIS

Patients with superficial collateral circulation over the legs and abdomen may have one disease or a combination of diseases. There may be cirrhosis of the liver, obstruction of the inferior vena cava, or cirrhosis of the liver and varicose veins of the legs. The distribution of the collateral circulation may aid materially in making a differential diagnosis. In cirrhosis of the liver the distended veins are near the median line of the lower part of the thorax, over the anterior abdominal wall between the ensiform cartilage and the symphysis pubis, and they may be prominent about the umbilicus. If there is obstruction of the inferior vena cava, the prominent groups of veins are in the iliac and inguinal regions and along the lateral aspects of the walls of the abdomen and thorax. In the presence of portal cirrhosis with superficial collateral circulation there is no continuity of the varicosities of the legs with the veins of the anterior part of the abdomen. There is always continuity between the varicosities of the legs and the lateral aspects of the abdomen in obstruction of the vena cava. An important differential point is that in obstruction of the vena cava the blood in the superficial veins flows upward, while in obstruction of the portal vein the flow is downward.

COMMENT

We do not infer that surgical ligation of the inferior vena cava is superior to the well-established methods of suture of the vessel when this is possible. But if the vena cava is deeply torn or cut below the renal veins it may be ligated without a great deal of fear because a collateral circulation which is adequate may be expected to develop.

Should it be possible to make a diagnosis of ascending thrombosis of either or both iliac veins the ligation of the vena cava below the renal veins may well be a life-saving measure.

SUMMARY

The sudden onset of bilateral edema extending to the upper portions of the legs, in the absence of cardiac or renal failure is usually indicative of obstruction of the vena cava.

The vena cava below the renal veins usually can be safely ligated as an emergency measure in man.

Obstruction of the inferior vena cava below the renal veins causes little if any discomfort to the patient.

Superficial collateral circulation is evidence that the deep collateral channels are inadequate.

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NEUROLOGICAL MANIFESTATIONS OF EPIDEMIC ENCEPHALITIS

A PRELIMINARY REPORT ON THE ST. LOUIS 1933 EPIDEMIC

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The postmortem findings in the recent St. Louis epidemic as well as in past epidemics of encephalitis show a somewhat diffuse involvement of the central nervous system. One is not, therefore, surprised but is prepared to find the clinical neurological findings to be in keeping with such pathological observations. They are multiple and of a type that definitely shows objective evidences of scattered organic changes both in the brain and in the spinal cord.

These organic changes are indicated by psychiatric manifestations of the types one sees in other organic brain diseases, by evidences of cranial nerve dysfunction, by tremor, by disturbances of the reflexes, by disorders in gait and station, by sensory changes and numerous signs and symptoms of organic brain and spinal cord disease. As a practical illustration of this, let us make a survey of fifty cases as a preliminary report of those admitted to the Firmin DesLoge Hospital of the St. Louis University.

Thirty of these cases or 60 per cent, showed inequality of the pupils. In most of the cases the pupils were small in size upon admission and upon discharge were either large or what may be considered normal. A few were small at the time of the outgoing examination. Seventeen (34 per cent) were unequal on admission and equal at discharge. Four (8 per cent) were found to be unequal on the last check up although they were reported as equal upon entrance. The total number of unequal pupils at the time of discharge was fifteen (30 per cent).

Photophobia was noted in five (10 per cent) during the early stages; however most of the cases could not be examined for this reaction because of their somnolent state. Three (6 per cent) had photophobia at the time of discharge.

Strabismus was demonstrated in two (4 per cent) of outgoing patients. It may be of interest here to note that some patients said they experienced double vision at the beginning and throughout their three weeks or more of hospitalization; and this diplopia was easily demonstrated at the termination of their hospital stay.

Nystagmus in nine (18 per cent) was present upon admission and in four (8 per cent) at final examination but in two of the last enumerated nystagmus was not present upon admission. One of these showed horizontal nystagmus in lateral end positions and also marked vertical nystagmus in looking upward.

Twenty-six (52 per cent) showed some inequality in the palpebral fissures, weakness in one side of the face, unequal innervation of the tongue, or a combination of these. All these cases both on admission and at discharge showed some evidence of disturbance in the reflexes, such as absence, decrease, increase, inequality, or combinations of these.

Toe signs were positive in twenty-seven (54 per cent). Two of these had negative toe signs upon admission but at discharge had definitely positive Gordon's toe sign. Eight had positive signs at time of the last examination. These signs were distributed as follows: Babinski on admission, sixteen; at discharge five. Chaddock on admission, seven; at discharge one. Gordon on admission, five; at discharge five. Oppenheim on admission, twenty-one; at discharge three.

It is of interest to note that during the early stages these signs were not always constant but in some cases they varied from day to day. These signs listed in the order of their frequency were Gordon's, Oppenheim's, Babinski and Chaddock's.

Neck rigidity on admission was present in forty-one cases (82 per cent) and Kernig's sign was elicited in twenty (40 per cent). Some degree of muscular rigidity of the extremities and the trunk was present in several cases at time of discharge.

Patellar and ankle clonus were present in one case, both upon admission and at discharge.

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Ankle clonus was present in three others at the time of discharge.

Tremors, fine, coarse or rhythmical were present in a very large number of outgoing cases. These tremors were of lower facial muscles, tongue, eyelids, extremities or of the entire body.

The mental manifestations in the main present the general characterization of the psychotic manifestations occurring in organic brain disease. Four main reaction types can be made out: (1) Depressive, (2) neurotic type, (3) delirious, (4) organic. A special study of mental cases was not attempted but in passing it may be said that some showed typical attention and memory disturbances of organic psychoses. Some showed typical paretic speech disturbances. Of the delirious type, one may see a case which at first might be mistaken for delirium tremens but which does not clear up as quickly as that of alcoholic etiology. Moreover, the neurological findings and cerebrospinal fluid examination will definitely fix the diagnosis. Another form of the delirium may be seen in a case which at first resembles the excited phase of a toxic psychosis, or even at times resembling excitement in dementia praecox.

The cerebrospinal fluid in forty-eight (96 per cent) showed an increase in cell count. Two showed no cells. In complicated cases on admission the cells varied from zero to eight hundred sixteen; on discharge from one to one hundred twenty. The average on admission was one hundred four, on discharge was twenty-six. In past epidemics the cell count has been known to remain high for as long as twenty-one months. It is of interest to note that the cell count seems to have no direct relationship to the globulin content or the colloidal gold reaction. Some cases with a decided cell increase showed no globulin, while others with a normal cell count showed globulin plus. The same can be said of colloidal gold reactions. Forty-eight showed reactions in the colloidal gold test. One might suppose that there is a characteristic curve as practically all of them showed changes in the first six tubes. The reaction is similar to that reported in past epidemics in which some authors characterized them luetic types of curves. It is my opinion after studying curves in this and those of past epidemics and comparing them with various types of luetic reactions, as well as curves found in many other clinical conditions, that the curves in this study are not of a luetic type but are practically the same as those found in other diseases in which there has been some destruction within the central nervous system. These curves have shown very little or practically no change from the early test to final test before discharge. The cell counts have decreased markedly toward the termination of the disease. Some however have shown more cells in the last count and in almost all the cases the cell count has been above normal, even at the time of discharge, when the patient appears to have had a complete subjective clinical recovery.

DIFFERENTIAL DIAGNOSIS

This disease must be differentiated from many others some of which are, cerebrospinal syphilis, dementia paralytica, cerebral arteriosclerosis, cerebral hemorrhage, uremia, tuberculous meningitis, other types of meningitis, poliomyelitis, encephalitis, myelitis or encephalomyelitis other than those due to the specific virus, influenza, typhoid fever, malaria, multiple neuritis, food poisoning, drug intoxication and possibly the psychoneuroses. The writer has seen a case of food poisoning during the present epidemic. This case in some phases was almost identical to some encephalitis cases, but fortunately the diagnosis was aided by the history of six or more other cases which developed the same conditions within one hour after a meal, all having eaten at the same place.

One of our group gave a typical picture of encephalitis plus history and presence of protracted otitis media. After a few days the cell count mounted to seven thousand and shortly thereafter terminated in death. The postmortem findings were those of a purulent meningitis with a definite focus in the auditory region.

One showed a few acute symptoms quite characteristic of encephalitis. The cell count was normal, the gold curve was the same as found in other encephalitis cases. However, the clinical symptoms were not as numerous as in others. The laboratory cultured bacillus typhosus from the stool and the patient was transferred to the Isolation Hospital. At the present writing this case has not been definitely diagnosed.

In another case with a typical picture of encephalitis, increased cells and reflex changes, the colloidal gold curve showed a much stronger reaction which could have been interpreted as a luetic. This patient proved to be a morphine addict. It is my opinion that his clinical picture could have been caused by an encephalitis due to the prolonged use of narcotics.

When the disease is epidemic it can usually, in outspoken cases at least, despite the clinical diversity, be easily recognized though in abortive, imperfect, rudiamentary and aberrent cases, great difficulties in diagnosis may be ex-

perienced and therefore many cases may remain unrecognized.

Although the epidemic form of encephalitis may simulate any one of a large number of neurological or psychiatric syndromes of entirely different origin, the mode of onset, the course and the results of carefully conducted neurological and psychiatric examinations with examination of the cerebrospinal fluid, will usually disclose diagnostic signs and symptoms sufficient for its recognition and differentiation, especially during an epidemic.

To those who have suggested correlation with poliomyelitis one may say that some of the clinical findings might suggest involvement of the cord, and some clinical findings do indicate changes in the posterior columns.

If the percentage of incidence of various decades are compared with the percentage of population of the various decades, it will be seen that childhood and adolescence are not much affected.

CONCLUSIONS

1. The objective clinical neurological findings indicate diffuse involvement of the central nervous system, including the spinal cord.

2. While this disease shows evidences of affecting numerous other structures of the body, the nervous system appears to bear the brunt of the attack.

3. In view of the fact that postmortem examinations show multiple hemorrhagic areas and destruction of the nerve elements, permanent damage must ensue.

4. With permanent damage to blood vessel walls and the surrounding areas, the normal vital processes of these areas is retarded or abolished because of the impaired circulation. Thus progressive nerve cell deterioration is to be expected in some locations where the damage has been most severe.

5. Because of the above mentioned changes, progressive, subjective and objective neurological and psychiatric clinical manifestations are to be expected in some of these cases.

6. In view of the above the prognosis must be guarded as sufficient time has not elapsed since the acute illness to warrant drawing absolute conclusions as to what the ultimate prognosis will be. In considering the findings of fifty cases at time of discharge from the hospital there are a number of striking facts to be emphasized: (a) Psychic functions were disturbed in some; (b) tremors of various types were present in many; (c) the deep reflexes were altered in all; (d) muscle tonus was disturbed in some and (e) the cranial nerves showed residual involvement in many.

From these findings one might venture the tentative prognosis that some of these patients who have survived the acute stages of the illness, may develop a progressive disease of the central nervous system.

RECOMMENDATIONS

1. It is to be recommended that all these individuals be kept under supervised study and direction.

2. A rest period followed by avoidance of strenuous physical or mental exercise or work depending upon the individual case is suggested.

3. Periodical neurological and psychiatric examinations are necessary for the benefit of the patient and also for the need of completing the study of this epidemic.

Permit me to suggest that as far as possible, these examinations should be made at not more than three months' intervals.

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PREGNANCY AND SYPHILIS

PRELIMINARY REPORT

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For many years it has been a routine procedure in the Washington University outpatient department to refer all pregnant syphilitic women for intensive antiluetic treatment. In 1930 a prenatal unit was established in the venereal clinic. All pregnant syphilitic patients are referred to this unit. They are observed and treated at weekly intervals throughout gestation. The results attained have been so satisfactory that we review the problem of pregnancy and syphilis at this time.

There is a marked variation in the frequency with which syphilis is noted in different communities. Gammeltoft[11] reported an incidence of 5.5 per cent in a series of 23,000 pregnancies from the university clinic in Copenhagen; Dodds of Edinburgh, noted a 6.5 per cent occurrence and Cruikshank observed a frequency of 9.04 per cent. In the United States the frequency varies between 3 and 25 per cent, depending on the type of patient observed in the particular clinic. Williams,[28] in a large series from Baltimore, observed an incidence of 2.5 per cent in white patients and 16.29 per cent in Negroes with a clinic average of 11 per cent. A report from Birmingham showed an 8.7 per cent frequency in whites as compared with 24.8 per cent in the colored. DeLee, reporting ward

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cases from the Chicago Lying-in Hospital, observed 3.6 per cent maternal syphilis. Prior to aggressive treatment, Wilson reported that 15.1 per cent of pregnant colored women in Chicago were syphilitic. Pomeroy, reporting a series of patients, mostly Japanese and Mexicans, from Los Angeles noted an 8.1 per cent frequency. Beck,[6] in 1000 cases from Brooklyn, reported 3 per cent maternal syphilis; whereas Gebhart of New York City in the same geographical community, in a similar series of colored women, noted a 23.3 per cent incidence. McCord[23] of Atlanta believes that 15 to 20 per cent of pregnant Negro women will show a strongly positive blood Wassermann reaction. A preliminary study of the frequency with which syphilis with pregnancy is noted in Washington University clinics indicated that approximately 4 per cent of the white women and 16 per cent of the colored are luetic, an average incidence of about 10 per cent.

The importance of syphilis as a cause of fetal death is brought out forcefully in studies of large series of fetal autopsies. Williams[28] reported that 26 per cent of the fetal deaths between the stage of viability and two weeks postnatal were due to syphilis; that 40 per cent of dead born prematures were luetic and that syphilis was present in 80 per cent of macerated fetuses. Routh reported syphilis in 25 per cent of fetal deaths. DeLee[8] noted that 40 per cent of macerated fetuses in the service of the Chicago Lying-in Hospital were luetic. McCord,[19] in a series of 200 fetal autopsies of stillborn and neonatal deaths, reported 45 per cent associated with syphilis and another 12 per cent as probably syphilitic. Adair observed syphilis in 7.4 per cent of 501 stillbirths. The apparent discrepancies are unquestionably due to the type of patient in the various clinics.

Marshall[17] considers that syphilis causes nearly one third of all the deaths of premature and full term babies including those stillborn and deaths during the first two years of life; nearly as many as from dystocia, the toxemias and prematurity combined.

Once a woman has become infected with syphilis all her subsequent children may be contaminated, even when such children are born to a different and healthy husband. It does not matter that such a woman may have been adequately treated as soon as the disease was discovered. It does not matter that she now shows no signs of syphilis and has a negative Wassermann. If she once had syphilis, as long as she is capable of bearing children such children *may* be syphilitic.

In the vast majority of pregnant luetic women no history of a primary or secondary lesion is obtained. The first intimation that lues is present is usually a routine positive Wassermann, Kahn or Kline, a macerated fetus or a stillborn child. Occasionally, when the maternal infection is contracted during pregnancy, the primary lesion may be much larger than is ordinarily noted, due to the increased vascularity of pregnancy. During pregnancy secondary lesions may be very slight; limited to the genitalia or even absent, but usually no history of lesions is obtained.

The relationship between the time of maternal infection and pregnancy is important. The possible conditions are: (1) Maternal syphilis present before pregnancy; (2) maternal infection at same time as conception and (3) maternal infection during the course of pregnancy. When infected before conception and not treated at any time, a premature labor or macerated fetus usually results. When infected at the time of conception or when suffering from an active luetic infection at this time and not treated, the highest fetal mortality is noted and all such infants born alive will be luetic. When infected early in pregnancy (first half) a syphilitic baby results but lues contracted in the last two months of pregnancy may not affect the child. The infection is not necessarily attenuated with age, so that many years may exist between the maternal infection and transmission to the fetus. However, when the disease has been long existent in the mother, frequently a lesser effect is noted on the baby.

Syphilis is not a potent factor in producing a termination of pregnancy in the first trimester, the percentage of abortions being approximately the same in syphilitic and nonsyphilitic mothers. The disease is not responsible for any high percentage of miscarriages. However, in the untreated cases it is a most important cause of premature labor, stillbirth and neonatal deaths during the first six months of life.

Age, sex and station of life play no role in the diagnosis of syphilis. History and maternal physical findings aid in diagnosis of about 18 per cent. In Beck's series,[6] 61.5 per cent of the patients who had been pregnant previously gave a history of miscarriages, stillbirths or living syphilitic children. The number of untreated syphilitic mothers who deliver living infants is great enough to emphasize the importance of disregarding a negative previous pregnancy history.

When the only finding is a positive Wassermann we are fully aware of the fact that, occasonally, a normal pregnant woman may give a positive reaction with the cholesterinized antigen. Fordyce and Rosen[10] reported that 25 per cent of maternal patients gave a strongly

positive reaction with cholesterinized antigen alone and gave negative reactions with all other methods. They do not consider a weakly positive Wassermann in pregnancy shortly before delivery as diagnostic of syphilis. Belding reported 5 per cent anticomplementary reactions. Hemsath[12] found that 30 per cent of the total cases demonstrated fixation in the cholesterinized antigen only. However, 81 per cent of these (Hemsath) had confirmatory clinical evidence of syphilis and 11 per cent had a positive or questionably positive Kahn; so that 92 per cent of those demonstrating only positive cholesterinized antigen reactions bore signs of syphilis. Gammeltoft[11] believes that a positive Wassermann in pregnancy is just as reliable as at any other time. DeLee[8] thinks that if repeated positive tests are obtained with various serologic methods in a reliable laboratory, the diagnosis of syphilis can be made safely.

Our experiences with the Wassermann, Kahn and Kline tests lead us to the conclusion that very few weakly positive reactions may be discarded as "false" reactions. We too have had patients with a strongly positive cholesterinized antigen only. When the reaction remains positive repeatedly such patients are given intensive treatment in the usual manner.

The diagnosis of syphilis in the new-born is made by physical examination, roentgen ray and pathological examination of the organs. The Wassermann reaction and other serologic tests may vary too greatly to be of aid. McCord[19] believes that a positive cord blood Wassermann at birth means the presence of syphilis, whereas a negative test means nothing. Our experiences indicate that the cord blood Wassermann, Kahn and Kline reactions may be quite inconsistent with the reactions noted at three months of age. While we have seen only one infant with a negative cord blood who became positive later, there were numerous reactions between one plus and four plus which were negative throughout at three months of age.

Syphilis is transmitted to the fetus through the placenta. Thus the disease is not an inherited one in the true sense but is an infection, maternal in origin. As Gammeltoft[11] states, "the maternal transplacentary transmission as so ably discussed by Matzenauer in Halban-Seitz is the only way of transmission, or practically the only way of any importance."

Eastman[9] has pointed out that it is a common observation that patients with a strongly positive Wassermann reaction and other obvious signs of syphilis give birth to nonsyphilitic children with an amount of treatment which would be ordinarily inadequate to affect the progress of the disease in adults. Such infants remain clinically well from congenital syphilis. Intensive treatment resolves into an attempt to prevent syphilis in the baby, not to cure the syphilis of the mother.

The actual treatment of these patients should be administered by or at least closely supervised by a syphilologist who understands minor idiosyncrasies and early signs of reactions to the drugs used. All syphilologists recognize the importance of both the intravenous arsphenamine or neoarsphenamine and intramuscular mercury or bismuth compounds. Most investigators administer neoarsphenamine in courses of four to eight weekly injections of between .15 and .6 gm. per dose. Lawrence[16] calculates the arsenical dose at 0.1 gm. per 30 pounds body weight. Abraham[1] considers a course of neoarsphenamine as the amount given in weekly doses of 0.45 gm. to give a concentration of 0.5 gm. per stone. For a 140 pound women this would entail twelve treatments. Mercury or bismuth intramuscularly is usually given simultaneously. McCord[20, 22] treats patients weekly with neoarsphenamine and a mercury rub from the time of first visit to delivery without pause.

In our venereal clinic an attempt is made to administer as vigorous treatment as the mother will tolerate safely. Prenatal care is given by the same observers at weekly intervals through the duration of treatment; the urine is examined carefully and the blood pressure taken weekly. Under such rigid control we have had no untoward results. Each case is individualized and treatment calculated for the remaining duration of pregnancy. Weekly salvarsan 0.3 gm. is given for a period of twelve weeks. Concurrently, in the last three weeks of this period, 1.5 c.c. bismocymol is given intramuscularly once a week. Then for six weeks bismocymol is given once a week. At the completion of this period (18 weeks) another salvarsan series is begun. An attempt is made during the early calculation to complete the treatment (at term) under salvarsan or neosalvarsan alone on the basis that the arsenical preparations are less irritating to the kidney than bismuth or mercury. An "adequate" course of treatment is at least eighteen weeks of the above outlined regimen. It may be that we will overcome the fear of giving more than twelve salvarsans in succession and continue this phase uninterruptedly.

Under such a régime we hope to approximate or surpass the results of Gammeltoft,[10] Beck,[6] McCord[22] and others who report between 75 and 90 per cent healthy nonsyphilitic children born of *adequately* treated mothers. Pillsbury[24]

at the Royal Free Hospital in London reports that there have been no stillbirths due to lues or syphilitic infants delivered of *adequately* treated mothers in the last five years.

A preliminary survey of our own patients reveals that at least 80 per cent of the mothers who received six or more salvarsan or neosalvarsan injections delivered healthy children with negative blood Wassermann at three months of age and bore none of the physical stigmata of syphilis. The best results, naturally, are obtained with treatment from the beginning of pregnancy and pursued throughout the gestation. In general one may say that if intensive treatment is begun by the 20th week of gestation and continued without interruption to the end of pregnancy, there should be at least a 90 per cent chance of attaining a healthy baby free of syphilis. It is never too late to give the first injection of salvarsan. Even with a very small amount of salvarsan, even though the child is not cured, the frequency of premature labor is reduced and the child is much more amenable to subsequent therapy. Long continued treatment before and during one pregnancy, even with a negative Wassermann, is not always a protection with future pregnancies. Every syphilitic woman should be treated vigorously with salvarsan or neosalvarsan and mercury or bismuth during pregnancy without any regard to the date of the initial infection, previous treatment or present Wassermann reaction.

SUMMARY

1. Every pregnant woman who presents herself for prenatal care should have blood taken for Wassermann, Kahn and Kline tests. There should be no exceptions to this rule. The frequency with which the external manifestations of the disease are absent makes such laboratory tests doubly important.

2. When a clear cut diagnosis has been made by history, physical findings or serological methods, vigorous treatment should be instituted at once.

When repeated serological tests are irregular or questionable, particularly with a negative history, the situation should be discussed thoroughly with the patient and treatment, at least provocative, should be advised.

3. Before any treatment is administered, the patient should be informed of the seriousness of the problem. She should be made to realize the possibility of delivering a living syphilitic baby; the efficacy of intensive treatment must be explained and the necessity of cooperation must be stressed. Efficient and adequate therapy cannot be carried out if the patient does not adhere religiously to the program outlined.

4. Treatment, as advised here, consists of weekly arsphenamine or neoarsphenamine in series of twelve or more injections of 0.3 to 0.45 gm. each. The last two or three such injections are overlapped with bismocymol 1.5 c.c. intramuscularly; then bismuth is given alone for six weeks, returning to arsphenamine after that time.

Not all patients tolerate the outlined treatment well. There may be reactions of varying degree of intensity to the arsenicals even as with the nonpregnant patient. When that occurs another form of antiluetic treatment must be substituted. We have used salvarsan, neosalvarsan, bismocymol, bismuth K. tartrate, mercuric succinimide, mercuric salicylate and mercury inunctions alone in various patients presenting various problems. The same contraindications to the various drugs exist in pregnancy as in the nonpregnant state. If at all possible, some form of treatment should be given until the patient delivers.

5. Our aim in treating luetic mothers is to obtain normal babies. The mother is the means by which the fetus is treated and the intensity of medication is governed by the tolerance of the mother.

Under such régime the patient who presents herself for treatment during the first half of pregnancy should have an 80 to 90 per cent opportunity of delivering a normal, nonsyphilitic, living baby.

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STILLBIRTH PROBLEM IN ST. JOSEPH, MO.

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One out of every nine pregnant women in Missouri will be without a living child at the end of one year. This was the average over the State of Missouri for 1931. It does not include those women who lost their babies through abortion or miscarriage, but only those who have either a full term or a premature baby. About one fourth of the infant deaths occur within one day after birth and 90 per cent of these are due to prematurity and birth injury. In 1931 premature birth accounted for 26 per cent of the total infant mortality. Skilled supervision throughout pregnancy is absolutely necessary if this death rate is to be reduced. The reduction of premature births means a reduction in the infant mortality and a reduction in stillbirths. (Missouri State Board of Health.)

Advancement in any branch of medicine depends upon the correction of mistakes and the adoption of better methods of treatment or more effective prevention. This study was made in order to ascertain if it were possible to reduce the number of stillbirths occurring in general hospitals where many babies are delivered by physicians not primarily interested in obstetrics.

The data was obtained from 59 records of 135 stillbirths occurring in the Missouri Methodist Hospital and in St. Joseph's Hospital over a period of 7 and 4 years, respectively. These hospitals are located in St. Joseph, Missouri, and draw patients from a radius of 100 miles. The staffs of these institutions are that of the average general hospitals. I say this to exclude the hospitals in connection with universities. Many records were worthless because they contained only the information that the mothers were females and between the ages of 15 and 50 years. All were white. Several gave a history of having had a previous stillborn baby or miscarriage.

Only 11 blood Wassermanns were taken; two were positive and nine negative. Because syphilis is recognized by such authorities as Polak,[2] Sterling,[3] Browne,[5] Gillespie,[13] Williams, DeLee and others as one of the four principal causes of stillbirth, it seems that more blood tests should have been taken on these prospective mothers. If the ratio of 2 to 11 held true throughout the 134 patients, we would have 24 positive Wassermanns in this group of cases. Six, or 4.5 per cent, of the mothers died; 3 of toxemia of pregnancy, one of shock, one of placenta previa and one cause not given.

The fetal heart was heard before delivery in 14 cases, not heard in 11 and not stated in 23 cases. Twenty-five of the babies were boys, 29 girls and not stated 6. Forty-five were full term; 14 were premature (23 per cent), considering 5 lb. 8 ounces or less as the index for prematurity, and one not stated. Only one autopsy was performed. Anomalies and abnormalities, ruptured liver and intracranial hemorrhage have repeatedly been found to be a cause of stillbirth. If more autopsies were performed intra-uterine asphyxia would become less frequent.

"Pituitrin, quinine and ergot, if given before delivery, cause too severe and too rapid uterine pressure. The fetal head undergoes such rapid changes in distribution of pressure that it does not have time to adjust itself to the new situation."[14] The following medication was reported as given before delivery.

Table 1. *Drugs Given Before Delivery*

Drugs	Number	Delivery
Quinine, 10 grs.	1	Spontaneous
Quinine, 20 grs.	1	Operative
Pituitrin, 2 m. to .5 c.c.	9	Spontaneous

Violent contraction of the uterus and placenta do not hinder the exchange of gases between the uterus and placenta while the placenta remains attached. Repeated and severe contractions of the uterus overload the fetal heart, causing it to dilate and finally to stop.[12]

The death of the baby at the onset of labor is due to the fact that the placenta and baby have an abundant supply of blood and the first uterine contraction causes an overloading of the fetal heart. A patient giving such a history should be delivered by cesarean section before the onset of labor.[12]

Feeble, ineffective, irregular labor pains over a period of hours are not an indication for

oxytocins, but are an indication for a thorough obstetrical diagnosis.

The length of labor has a direct relation to operative delivery and to stillbirth. The length of labor was recorded in only 25 of the 59 cases studied. As shown in Table 1, Part 2, 12 of the 17 deliveries terminating within 20 hours of labor were spontaneous. Eight deliveries in which labor extended over 20 hours were operative. There were no spontaneous deliveries in the group of 20 to 50 hours in labor. The length of labor was not accurately recorded in many cases terminating within 5 hours.

Table 1, Part 2. *Spontaneous and Operative Deliveries*

Length of Labor	Spontaneous	Operative
Under 10 hours	8	1
10 to 19 hours	4	4
20 to 29 hours	0	1
30 to 39 hours	0	1
40 to 49 hours	0	3
Over 50 hours	0	3

Peckham found in an analysis of 13,658 deliveries that precipitate labor (under 3 hours) was not favorable to the baby and that labor over 25 hours increases fetal mortality rate. From 3 to 25 hours is the optimum length of labor.[11]

Statistics show that the safest age to have live babies is in the twenties and the lowest stillbirth rate occurs in the second and third pregnancy. From the second pregnancy the risk increases in direct ratio to parity. The first child has a little lower risk than the seventh.[8] In our series 39 per cent of the mothers were between the ages of 20 and 29 and 40 per cent were para I.

There were 35, or 60 per cent, spontaneous deliveries (21 cephalic and 14 breech presentations) and 25, or 40 per cent, operative deliveries, divided as follows:

Table 2. *Type of Delivery*

Spontaneous, 35 (60%)			Operative	
			Craniotomy	1
Forceps: Low 3, Mid 2, High 1		6	Induced labor	1
			Cesarean section	3
Version and extraction		9	Breech extraction	1
Stated as operative		1		
Forceps, followed by version and extraction		3		

Operative deliveries usually carry a higher fetal mortality than spontaneous deliveries. A review of the literature on stillbirths shows trauma associated with labor and delivery as one of the chief causes, 1 to 6, 9 to 16; yet one cannot deny that earlier operative interference will save the baby in many cases.

Three mothers were subjected to the risks of a cesarean section. Two of them died. All three babies were stillborn. Version and extraction constituted about 50 per cent of the operative deliveries as shown in table 2.

Williams states that more children are born between the hours of 9 p. m. and 12 midnight than in any other three hours of the day. And only 4 or 5 per cent more children are born at night (6 p. m. to 6 a. m.) than during the day. Table 3 gives the time of birth as taken from the records of the 59 cases studied.

Table 3. *Time of Delivery*

	6 to 9	9 to 12	12 to 3	3 to 6	Total
		DAY			
Spontaneous	5	4	7	5	21
Operative	3	8	3	3	17
Total	8	12	10	8	38
		NIGHT			
Spontaneous	3	4	5	1	13
Operative	3	1	1	2	7
Total	6	5	6	3	20

There were 90 per cent more stillbirths during the day than during the night. And there were more stillborn babies between the hours of 9 a. m. and 12 noon than in any other three hours of the day. The significant fact is that there were twice as many operative as spontaneous deliveries during these same three hours. In New York State more stillbirths occurred between the hours of 3 to 6 p. m. than in any other 3 hours of the day.

Prenatal care has been mentioned as a panacea for many obstetrical ills and prenatal care is of paramount importance in the reduction of stillbirths. In 2000 labors in the Long Island College Hospital the stillbirth rate was 44 per 1000 for all classes; in 1000 cases from the prenatal clinic 24 per 1000. The Methodist Episcopal Hospital of Brooklyn gave a rate of 24 per 1000; private cases 26 per 1000 and ward cases 19 per 1000.[7] In 1930 the stillbirth rate of St. Joseph was 57.3 per 1000 live births. The prenatal clinic for the same year had a rate of 26.4 per 1000 live births. In the cases herein reported adequate prenatal care probably would have saved the lives of one third of the babies. Table 4 gives the maternal complication that may have caused stillbirth.

Many of these mothers probably would have

Table 4. *Complications of Pregnancy*

Toxemias	9	Twin pregnancies	3
Prematurity	4	Myocarditis	1
Syphilis	2	Bandl's ring	1
Tumor previa	1	Shock	1
Placenta previa	2	Premature separation of placenta	1
Contracted pelvis	2		

had live babies if they had been kept under constant supervision throughout pregnancy.

It is an easy matter to review the cases after they have been delivered and to say that a different method of delivery should have been used. But it is evident that the wrong method of operative delivery was used in several instances as shown by an analysis of the following:

Two cases of placenta previa were treated by packing, bag, version and extraction. One case of tumor previa was delivered by version and extraction. Cesarean section probably would have given better results. One case of mid-forceps, long labor, Bandl's ring should have been sectioned. There were no contraindications for cesarean section in any of the above cases. Any embryotomy should have been performed instead of a Porro section on a patient of dystrophia dystocia syndrome type, pre-eclampsia, long labor. Both the mother and baby died.

A cesarean section plus a stillborn is considered a gross obstetrical error. Cesarean sections are nearly always performed in the interest of the baby, and to have three cesarean sections with stillborn babies in our list of cases is inexcusable. Versions and extraction is a difficult delivery but is preferred to high forceps. I realize that many of these women were in labor in the home for a period of hours and then brought into the hospital for the miracle of producing a live baby for that mother. It is to be regretted that we cannot fix a definite length of labor as being absolutely pathological and demanding immediate delivery, whether by version and extraction or cesarean section, but the only criterion we have is the advancement of labor—what the patient has accomplished. One should be able to tell this after 10 or 12 hours of labor. Some patients have long labors but finally deliver spontaneously; others will never deliver spontaneously. And after 10 or 12 hours of labor in such a patient one is fairly sure she is not making normal progress. To wait for such a patient to deliver almost always results in a stillbirth.

Earlier operative interference would probably have saved the life of the baby in the following case: Obese patient, long labor, was scheduled for cesarean section. Rectal examination before taking patient to the surgery disclosed the head was on the perineum. Delivery was delayed an hour or so longer and then terminated by low forceps. In this case, as in many others, the fetal heart rate should have been checked more often.

The stillbirth rates in our hospitals may be a little higher than the average, due to the tendency of expected dystocia to seek hospital attention; but this same tendency exists in other communities and the stillbirth rates of their hospitals are lower than ours.

We would have more live babies if the physician in charge recognized the complications early in labor and planned his treatment accordingly. Many patients are allowed to pound away in labor hour after hour without accomplishing anything. This adds to the maternal as well as to the fetal risk.

Blood Wassermann should be taken on every pregnant woman, and should be repeated for each pregnancy.

Prenatal care, by reducing the number of toxemias of pregnancy and premature births will lower the stillbirth rate. This has been proved in every prenatal clinic in the United States.

The maternal condition, temperature, pulse rate, etc., and the fetal heart should be checked throughout the first and second stages of labor. Remember that the risk is in direct ratio to the age of the patient, to the parity and to the length of labor.

The use of quinine and pituitrin should be discarded during the first stage of labor. If the pains are ineffective or weak, morphine is indicated. One cannot do obstetrics by appointment.

We will be able to determine the cause of stillbirth and reduce our stillbirth rate if we accurately record the following:

1. Maternal complications.
2. Findings on each rectal and/or vaginal examination.
3. Fetal heart throughout labor; if not heard that should be stated.
4. Length of labor, especially the second stage.
5. Drugs given before or during delivery.
6. Type of delivery.
7. Indications for operative delivery.
8. Whether full term or premature baby. (Weight.)
9. Pathological report of placenta of abnormal cases.

Records alone will not reduce the stillbirth rate. The method of delivery as practiced by the average physician should be improved,[6] and we must direct greater efforts toward the improvement of maternal health during pregnancy.[16]

Note: Much has been said in regard to the practice of obstetrics in general hospitals. This report, I believe, represents a cross section of one phase of obstetrics as practiced in general hospitals. This paper is offered that it may stimulate the interest of those caring for the expectant mother; and by pointing out a few facts cause the general hospital to improve the obstetrical service and demand a complete record

of every obstetrical case. It is gratifying to note that the stillbirth records in general hospitals have been very much lowered in 1932 and 1933.

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THE POSTTRAUMATIC NEUROSES

George W. Hall and Roland P. Mackay, Chicago (Journal A. M. A., Feb. 17, 1934), point out that a study of a great number of posttraumatic neurosis cases reveals at once that the posttraumatic neuroses do not differ in any essential way from most other, nontraumatic, neuroses. The majority of cases may be classified into posttraumatic neurasthenia, posttraumatic anxiety neurosis and posttraumatic hysteria. The authors give the principal clinical features of these three types of neuroses and discuss the psychology of the posttraumatic neuroses. Under treatment they state that the patient should not be antagonized, that financial matters (of treatment) should be settled at once and not in protracted payments by which the question of the patient's disability is constantly kept open. The patient should be put to some form of work so that his interest is centered on something else besides himself. Medication, various forms of physical therapy or electrotherapy are useful in giving him reason to expect improvement and a basis for relinquishing his symptoms. That such treatment may lack a physiologic rationale, in view of the fact that no physical basis exists for his symptoms, is neither here nor there. The psychologic rationale is ample warrant for such procedure.

UNUSUAL ANATOMIC RELATION OF THE COMMON CAROTID ARTERY AND VEIN TO RIGHT LOBE OF THE THYROID

REPORT OF A CASE

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This case is interesting merely because of its apparent rarity but it is not reported from this standpoint alone. There are two other reasons for reporting the case, namely; (1) the condition may be more frequent than the literature indicates, and if it is the surgeon must be aware of the existence of such anomaly; (2) it seems justifiable to split the ribbon muscles in any condition where either lobe is unusually enlarged and pulsation more marked in the enlarged lobe, as it was in this case, thereby giving a clear view of the operative field rather than trying to retract the gland inward. If that had been attempted in a case of this type it is probable the common carotid artery and vein would have been wounded with a fatal outcome.

REPORT OF CASE

Mr. S. consulted me in June, 1933, because he was nervous and had restless and sleepless nights, choking sensation about his throat with pressure more marked on the right side than on the left. He also complained of his heart "missing beats" and shortness of breath.

Physical examination showed the following: Eyes showed some exophthalmos. Mouth negative except for a slight pyorrhea. Palpable mass over the site of the thyroid gland, more prominent on the right side than on the left. Chest apparently negative. Fine tremor of the upper extremities was present. All deep and superficial reflexes very active, the pupils

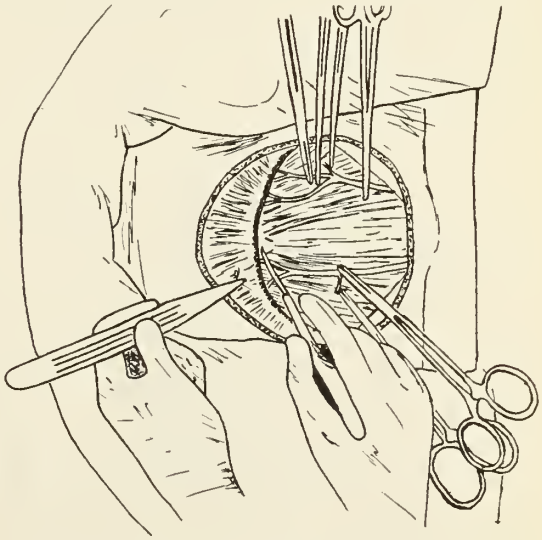

Fig. 1. Deflection of skin flap and platysma.

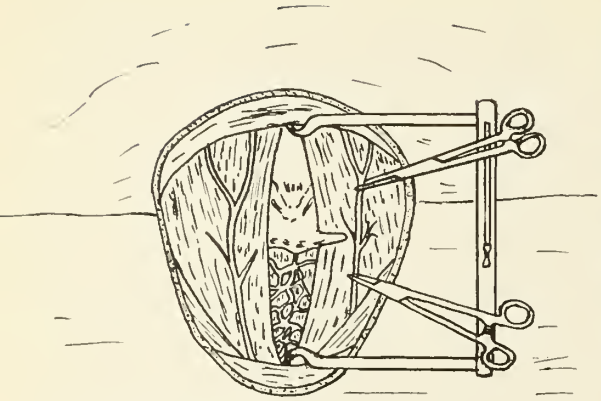

Fig. 2. Infrahyoid muscles split longitudinally and start of division transversely.

reacting to light and accommodation. Patient was oriented as to time and place and was very active in all his movements.

White blood count was 8000, red blood count 4,000,000; urine negative; pulse about 90; basal metabolism plus 40; Wassermann negative; blood smear negative; N. P. N. 30. Fluoroscope revealed lungs well aerated on both sides; the heart was somewhat enlarged. No other abnormalities noted.

Provisional diagnosis was a toxic adenoma of the thyroid gland. Lugol's solution was given and in about two weeks the basal rate was down to about 18 plus. At that time a thyroidectomy was done.

A low collar incision was made as shown in figure 1. Figure 2 shows how the deep fascia was opened and figure 3 shows the beginning of the enucleation of the gland on the left side. Figure 4 indicates what was found in this case.

The right lobe was much larger than the left. The capsule of the gland was pierced by the internal jugular vein and the common carotid artery, these vessels piercing the gland directly instead of being posterior and lateral. Apparently few vessels were

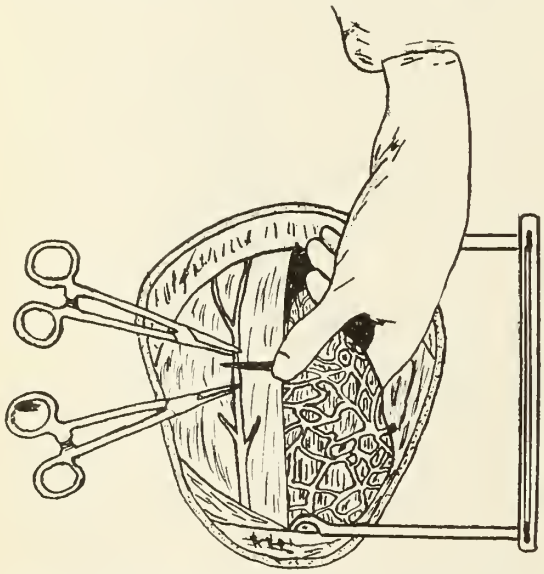

Fig. 3. Dislocation of left lower pole. Ribbon muscles on right side split transversely partially.

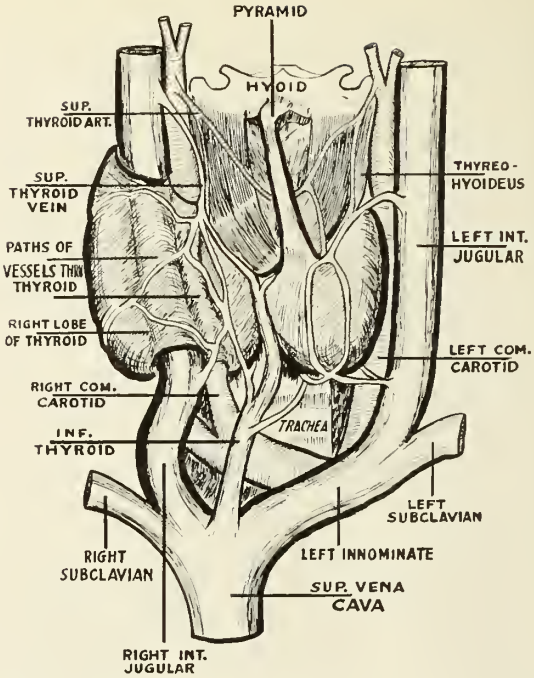

Fig. 4. Relation of arteries and veins to thyroid in case presented.

given off in the gland itself since after penetrating the gland the vein and artery both gave off the customary branches (fig. 4). No attempt was made to remove the right lobe. The left lobe was removed and the patient made a good recovery.

This is apparently a very unusual anomaly. Its occurrence should be borne in mind because when present these important vessels could very easily be wounded with a fatal outcome. We know it is not unusual to find adenomatous tissue posterior and lateral to these vessels but this is the only case that I have observed with the capsule of the gland actually pierced by the internal jugular vein and the common carotid artery. I have communicated with some noted goiter surgeons in this country and they stated that they did not know of a similar instance.

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SARCOMA OF CHEEK FOLLOWING TRICHO X-RAY TREATMENT FOR HAIR ON FACE

Ira I. Kaplan, New York (Journal A. M. A., Feb. 24, 1934), points out that repeated roentgen treatments may cause destructive lesions of the skin. Because of its potential danger, irradiations should be employed only by those properly qualified by special training and experience. These destructive changes may occur many months or even years after treatment. Malignant changes may occur following necrosis in an overirradiated skin area. The removal of hair by X-rays is fraught with danger. The author reports a case in which sarcomatous degeneration followed repeated treatments with X-rays for hair on the face, applied by Tricho, a commercial beauty parlor.

THE MENTAL ASPECTS OF CRIME

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There is a very close alliance between criminology and psychiatry. In both the behavior deviates from the normal or average behavior of the community. This behavior is antisocial and may become a menace to the public. Individuals exhibiting the behavior of either the criminal or the insane may require temporary or permanent isolation from society, not only for the good of society, but also for the good of the criminal and the insane, as reclamation is the avowed goal for the criminal as is restoration for the insane.

There enters into all human relationships the idea of responsibility. We discuss the responsibility of children; we consider in dealing with the insane their impaired and abolished responsibility and the question of responsibility has ever been paramount in our dealings with the criminal.

Can responsibility be defined? The definition given by the standard dictionary is, "a state of being answerable or accountable legally and morally; having sufficient mental capacity to understand and perceive the distinction of right and wrong; having sufficient moral discrimination to be legally answerable for one's conduct."

Mercier defines criminal responsibility as, "rightly liable to punishment." He defines "rightly liable" as "the body of opinion as to what is right and wrong, now prevalent in my own country and generation."

In the definitions quoted, responsibility has both an ethical and legal aspect; the ability to distinguish between right and wrong—moral discrimination—and, on the other hand, legal accountability—competency to make one's conduct conform to certain standards established by law. Legal and ethical values do not always coincide. It has been well said one can break six of the ten commandments and commit no crime; there are also certain laws the violation of which does not as a matter of fact imply moral turpitude. The objectives of law and ethics are practically the same as they have a common lineage. Law is the outgrowth of morals; morals are customs crowned with the halo of time—the habitual practices and customs of the majority through succeeding generations in a community of social beings.

Responsibility is an attribute of man as a social agent and concerns his relations to other social beings. It has little meaning when we consider man as an isolated personality, without contact with his fellows; the question of right and wrong is to be continually considered. Unfortunately, we have no absolute test of right and wrong. Absolute right or absolute wrong are abstractions which convey no meaning. They are relative ideas which are changed and even reversed from social level to social level, from generation to generation and from country to country.

"Thou shalt not kill" is a commandment, and the inference would naturally be that it is a wrong to kill. Murder may be a vicious and criminal act but it is not always so. It may be a natural and defensible act, or it may even be extolled as a praiseworthy deed. The mere act of killing is not necessarily wrong; it all depends upon the circumstances.

Mr. Darrow aptly gives expression to the formula: "It is wrong to kill when it is wrong to kill." So we see that to define finally and permanently right and wrong is as impossible as it is to personify them. Legal accountability is hardly more satisfactory to deal with.

The law changes more rapidly than customs and morals. The act that was lawful yesterday becomes a crime today by merely affixing a signature to a piece of paper and, by the same process, the crime of today may become a virtue tomorrow.

We are called upon to determine the question of responsibility with reference to these changing values of right and wrong, permissible or not permissible; legal or illegal.

It may be merely a matter of accident or environment whether an individual lives out his life as an apparently law-abiding citizen or passes to the ranks of the professional criminal. The successful and respected business man of today may tomorrow be branded as a criminal without actual change in the nature of the individual or in his habits of thought and action. The law endeavors to attain some measure of precision; when it insists upon the item of criminal intent it seeks to show that the criminal, as a free agent, knowing the difference between right and wrong, has deliberately chosen the wrong.

The criminal is an interesting study. Few of us have an opportunity of studying him as did the Russian novelist, Dostoyevsky who served years of penal servitude, associating with all classes of criminals. His "Crime and Punishment" is a masterpiece; his criminology is founded upon the dual attitude of compassion and comprehension. There is justly much criticism of the maudlin, sentimental attitude of certain individuals toward criminals. Dostoyevsky admonishes us to love the criminal. Personally, I cannot subscribe to this doctrine, but it is imperative that we try to understand him.

A better understanding of the criminal can

only be attained by prolonged study under favorable conditions. We must have the confidence and cooperation of the criminal in this study; he must be convinced that his own welfare and that of society do not aim and should not necessarily aim in opposite directions; that society has no purpose and no wish to inflict suffering upon him merely as vengeance or retaliation; that treatment designed to promote his own welfare must include punishment or penalties also, insofar as the interests of the public welfare require.

If we approach the subject from this viewpoint the question of responsibility is not so important; rather, we are seeking motives of conduct, whether that conduct be normal or abnormal, vicious or virtuous, criminal or lawful. In considering motives of conduct we should use the same kind of measuring stick, whether we are dealing with normals, insane or criminals. By this method we endeavor to get at the real springs of conduct of the insane and explain his disordered behavior; and an understanding of the motives of the behavior of the insane aids us very materially in their restoration. A like understanding will aid us in the reclamation of the criminal.

While the behavior of the insane and criminal is antisocial and a menace to society, the insane and criminal should not be placed in the same class. The insane man is a sick man; the criminal is not sick but is usually a willful violator of the law; a vulture who preys upon society for the purpose of unlawful gain or to satisfy the craving of some vicious passion.

In both cases, the insane and criminal should be confined and isolated until they are no longer a menace to society. The idea of modern criminology is to give to the criminal that degree of punishment which will best serve the interests of society, and penalize him only to the length required for the public safety and welfare.

Some have expressed the idea that all criminals are mental cases but this is far from the truth, even though we speak of crime as a social malady. The law regards every man sane until the contrary is proved. This applies to criminals as well as to the law-abiding citizen. The competent physician recognizes the fact that no patient can be properly treated without knowledge of the nature of a disease and its causes.

In the not very remote past the insane were classed and treated as criminals; even physicians regarded them as victims of their own evil deeds, and they were treated brutally—herded as criminals. All this changed since we have realized that the insane man is a sick man and that there is no close relationship between the insane and criminal even though a criminal may become insane or an insane person commit criminal acts.

Many attempts have been made to explain the abnormal behavior and tendencies of the criminal: why will men choose to be criminals, or do they so choose, or are they the victims of a deterministic fate which propels them into criminality despite their choice? Is there a class of individuals doomed from birth to travel the criminal road?

Lombroso was perhaps the first to attempt a serious study of the individual criminal. He advanced the idea that all criminals exhibited physical abnormalities of development and that crime was an atavistic act of an atavistic being who reproduces in his person the ferocious instincts of primitive humanity and the inferior animals. Lombroso held that the criminal was a physical and psychical atavic forming a special type, biologically and anatomically; an abnormal being driven by an irresistible atavistic impulse to commit antisocial acts.

The chief physical anomalies include abnormalities of the head—the size and shape—disproportionate face, ptosis, strabismus, peculiarities in nose shape, cheek pouches, abnormal dentition, feminine distribution of hair, prehensile feet, etc. Lombroso later modified his ideas, introducing his criminal class composed of those who through poor environment and education fall back to the primitive tendency toward evil. The early ideas of Lombroso are no longer acceptable, as many normal people show the physical stigmata of Lombroso and many criminals do not.

Ferri taught that moral insensibility and want of insight are the two chief characteristics of the criminal. He summed up the psychology of the criminal as having a defective resistance to criminal tendencies and temptations, due to that ill-balanced impulsiveness which characterizes children and savages. Ferri says, as a matter of fact, the thief is rarely if ever reformed. Grafola says there is only one aim in criminology, i. e., the careful study of the individual with a view toward ascertaining the cause of crime. Conevale says the criminal is a product of early evil associated environment. Bentham reduces all behavior to pleasure and pain; he believed the pleasure goal of the criminal to be a malevolent one. Henry Maudsley was the first in England to apply psychiatry to the criminal personality. He believed criminal tendencies were inherited in the brain structure from criminal or insane ancestors. Dugdale concluded that the criminal is a product of the cross between a vicious and strong strain.

The question of responsibility and freewill

were stressed to a greater degree in the eighteenth century than at the present time. These views underwent considerable change during the nineteenth century and were further elaborated in the twentieth century. Binet of France formulated an intelligence test. This test with its numberless variations purported to measure emotivity; character and personal traits; vocational fitness; special types of intelligence; degree of motor control and degree of psychopathy.

Using these tests in the case of criminals, many men have concluded that a large per cent of criminals are mentally abnormal and feeble-minded. Goddard believes 50 per cent of all criminals are feeble-minded. Terman places the percentage at 25. Sueue believes that 50 per cent of criminals are deviates from the average standard of contemporary individuals of the same age. Healey and Bronner, in a study of 4000 delinquents, conclude that the delinquent does not form a separate group physically. Their records show 13.5 per cent clearly feeble-minded; 2.8 per cent psychopathic personalities. Stekel implies that the criminal reacts in a primal fashion, seeking to place himself above the limitations imposed by commandments. Adler advances the idea that he is one who compensates for an inferiority by outdoing others in criminal behavior; the criminal act would then become a manly deed—a proof of "manliness." It is my opinion that this is an explanation of much crime. The questions naturally arise, "Why are there so many and such varying theories of the causes of criminality?" "Why is one man law-abiding, another a law breaker?" In medicine there are few specific remedies and we find that diseases that do not respond well to any form of treatment have a multitude of remedies offered for their relief. The same rule holds good for the causes and cure of crime; no one has yet discovered the specific remedy.

As stated above, the theory of physical stigmata of degeneration advanced by Lombroso is no longer acceptable. Now we have a new Lombrosionism in the criminologist who sees in every criminal stigmata of mental abnormalities and mental defectiveness. Is this theory any more sound than the early theory of Lombroso? If it is, why do competent investigators, using the same standardized scale of intelligence tests, vary so widely in their conclusions? Goddard says more than 50 per cent of criminals are feeble-minded; Healey, 13.5 per cent.

Erickson investigated 1690 male adult criminals. He reports 852 normal intelligence; subnormal, low intelligence 327; high grade feeble-minded 408; low grade feeble-minded 103. Various other investigators concluded that from 20 to 30 per cent of all delinquents are feeble-minded, and 6 per cent of all are criminals.

At least one reason for the wide divergence of opinion concerning the amount of subnormal and mentally defective among the delinquent and criminal classes is, the personal bias of the investigators; another reason is, because many of those making such investigations are incompetent.

According to the reports on the mental age of the enlisted men in the American Army in the World's War, approximately 20 per cent were feeble-minded. As these men were a fair representation of the general population it follows that 20 per cent of the entire population, outside of institutions, are feeble-minded. I do not believe this to be true.

The standardized tests are not accurate and by them many people of normal intelligence would be found to be subnormal; and they do not accurately measure the native intelligence of the individual. It is true, some individuals who are feeble-minded become delinquent and criminal, but I do not believe that the percentage of subnormal mentals is any higher among the delinquent and criminal classes than among the general population.

The crimes of the subnormal are usually minor in degree, such as petty stealing; occasionally they commit crimes of violence and sex crimes. They do not have the intelligence to plan and execute the more intricate crimes. It would certainly be an insult to the intelligence of our law enforcing agencies to say that the vast number of unsolved crimes are committed by feeble-minded persons. It is doubtless true that a larger percentage of the subnormals who commit crimes are apprehended and convicted than of the criminals of a higher grade of intelligence.

It is my opinion that antisocial acts are not the result of inborn defects, either mental or physical. It has been my observation that the subnormals are as a class law-abiding and do much of the so-called common labor required by society. You understand, I am not referring to idiots and low-grade imbeciles but to that very numerous class known as morons.

Lombroso's theory of inborn physical defects as a chief cause of crime remained an unproved theory and was abandoned. It is my opinion the theory of inborn mental defects will go the same way.

Some crimes are committed by persons frankly insane but the number of crimes committed by those actually insane is relatively small. It is true that the plea of insanity is often offered as a defense for crime. The fact

that a defendant is willing to plead insanity is the strongest kind of presumptive evidence, if not actual proof, of sanity. Insane persons are not willing to admit their insanity.

Many criminals have escaped just punishment for crimes committed and proved through the combined services of shrewd lawyers and unscrupulous doctors. Doctors may be mistaken and honestly disagree, but many such cases have come under my observation in which the sanity of the defendant was so obvious that no competent physician could be honestly mistaken concerning the mental status. Insanity as a defense is usually used by intelligent defendants when no other defense is available. We are known as the most criminal nation, and yet we try to pose as the most civilized. We make it easy for the criminal. The more vicious the crime the more compassionate are a goodly number of our citizens toward the criminal.

A survey of the crime situation made in Missouri a few years ago showed how easy it is to commit crime in St. Louis or in Kansas City. A report of the survey committee showed that, from October 1, 1923, to October, 1924, in the City of St. Louis, there were reported 13,444 major crimes. For these crimes, 374 people were convicted and punished. The report also showed that the convictions for murder in St. Louis were one in six; in Kansas City, one in eleven. For burglary in St. Louis, one in twenty-five; in Kansas City, one in one hundred. I believe conditions have improved in Kansas City since then.

In my opinion, one of the major causes of crime is defective laws rather than defective minds and bodies. It seems that the criminal is more efficient in escaping punishment than our law enforcing agencies are efficient in punishing him. This gives the criminal encouragement, as I believe the most potent deterrent of crime is the certainty of sure and quick punishment. This is well demonstrated by the administration of British Criminal Law. There, the criminal is punished quickly and surely, and the relative amount of crime is very small.

I know of no better proof of the weakness of the theories that physical and mental deficiency are major causes than the example of England. The ratio of physical and mental defectives is larger than in our country, and yet the ratio of crime of all kinds is very, very much smaller. There, the criminal knows that he probably will be captured and punished quickly. Therefore, he wills to refrain from the commission of crime. In this country he knows his chances are most excellent to escape capture, and even punishment if captured and proved guilty. His trial may be delayed indefinitely after capture; it will probably take years to get action by the various courts and, even though convicted and sentenced, his chances are exceedingly good that, in a short time, he will be pardoned or paroled, and will be free to resume his criminal activities.

There are two general methods of treating disease: (1) Prevention and (2) cure. The preventive method has been very successful in the prevention of many diseases. This is especially true of typhoid fever, malaria, yellow fever, diphtheria, scarlet fever, smallpox and infantile intestinal disorders.

Our improved methods of treatment have greatly reduced the duration of illness and mortality rate in many diseases. While, as yet, no successful method has been devised for the prevention of insanity and nervous disorders, which are increasing at an alarming rate, improved methods of treatment are restoring a much greater number of the nervous and mentally sick than formerly. But our efforts at the prevention and cure of crime have thus far been unavailing; and if the same ratio of increase continues it is only a question of time until the insane and criminals in our institutions will outnumber the people outside. It is a logical conclusion in the face of these facts that our methods thus far have been to say the least faulty.

We are prone to speak of the criminal type. In my opinion, there is no criminal type. The criminal may have his origin in a hovel or a mansion, on the farm or in the city; he may be a college graduate or extremely illiterate; he may be a social and civic leader today, a fugitive from justice tomorrow.

All children, of whatsoever parentage, are potential criminals and to some degree antisocial in their behavior. Each individual child should be managed and developed as an individual.

The so-called criminal is an individual and should be treated and studied as an individual. We must realize that the line separating the criminal from the noncriminal is vague at least and a very slight wobble in the gait of the respected citizen will carry him across this line and he too becomes what we call a criminal.

It is very noticeable that there is a rapid growth of disrespect for law in our country. One reason for this is the vast number of laws, many of them petty, interfering with the personal liberties and activities of the citizen. A law that does not appeal to the reason of people does not inspire respect. Many refrain from committing criminal acts because of fear of the punishment which they may receive if detected. For this reason, penalties should be quick and severe for the violation of major statutes.

I am a believer in the individual responsibility of individuals. I believe that all adult individuals, excepting those of deranged and juvenile mentality, should be held accountable for their acts. It matters not what their parentage has been, or what environmental influences have been operative in their lives. Still, the enforcement of the law should be tempered with justice. The unfortunate man who steals because he or his family is suffering from cold or hunger should not be dealt with as severely as the man who steals in order that he may lead an idle and vicious life.

We hear much of prison reform; some good-meaning folks would make prison life so pleasant for the criminal that prisons would have no terrors for him. On the contrary, he would rather welcome a "return engagement," as the prison would appeal to him as a place where he could live a care-free life of ease.

When children are disobedient parents punish them by whipping. I believe this method of punishment would be more effective in the case of criminals than in the case of children. I believe the whipping-post should be used as a punishment for all petty crimes. It has proved very effective in some of our states and in England.

Permit me to emphasize that there is no set formula for the cause of crime. The causes are as various as the individual criminal. Parental training or lack of training plays a part; association plays a part; social conditions and relations play an important part. Mental abnormalities and physical defects, in my opinion, are of very minor importance. The egocentric, antisocial tendency is the psychological foundation of the habitual crime, external circumstances being favorable for its perpetration, the propelling factor in the realization of the criminal idea being the antisocial instinct itself, whether of atavistic or acquired origin. This instinct is of a complex nature and is manifold in its manifestations. There are, however, at least three mental principles which seem to be associated with it, (1) defiance of the existing social order; (2) following the line of least moral resistance, (3) absence of remorse.

The fact that social friction is as old as society itself explains why crime has always been in existence, and always will be existant, regardless of the political modes and ethical doctrines prevailing at any time.

There are two major instincts that motivate men and women. One is primary the other secondary in development. The primary instinct is the instinct of self-preservation, and is manifest immediately after birth; the other, the secondary instinct, does not develop until later in life. It is the instinct of propagation of the race.

I believe one of the principal causes of crime is an overemphasis of the instinct of self-preservation which submerges, to a considerable degree, the instinct of preservation of the species. There are many other minor instincts which are outcroppings of these two major instincts.

I am not a lawyer but it is obvious that our criminal laws should be simplified and, as a vast number of the crimes are committed by repeaters, there should be a graduated severity of penalties, penalties for second offenses being more severe than for first. Paroles and pardons should be more carefully considered and never given excepting for first offenses. That pardons and paroles are too easily obtained may be proved by a few statistics. A few years ago, Normen Hapgood estimated that the average time spent in a Kansas prison, under sentence of life imprisonment was four years; in Michigan, twelve years. Twelve years is, perhaps, in excess of the average for the country at large.

Also, proof of the certainty of quick and sure punishment lessens crime is well exemplified by the records. Canada has capital punishment and applies it with much the same degree of severity as does England. During the years of 1928 and 1929 there occurred 485 homicides in Detroit, and not one in Windsor, Ontario. Nebraska has capital punishment, Kansas has not. In 1929, there were 81 homicides in Kansas, and 48 in Nebraska.

Milwaukee gives us a good example of the influence upon criminals of quick and sure punishment for crime. They have an efficient police department; they have had two chiefs of police in forty-six years. With 700,000 population, they average less than one homicide a month. In 1931 there were nine murders in the city of Milwaukee, and the records show that there has been only one unpunished murderer in that city in ten years.

The insurance tables show that Milwaukee is 86 per cent safer from burglary and theft than New Orleans, St. Paul or New York; 114 per cent safer than Atlanta or Los Angeles; 125 per cent safer than St. Louis or Chicago; 168 per cent safer than Detroit and 257 per cent safer than Kansas City.

England, by rigidly enforcing the death penalty, has almost emptied her prisons of major felons and almost abolished murder. In the United States, during the year 1928 there were 10,000 homicides with only 132 executions. Could we ask for any better evidence than this, that one of the most potent factors in the prevention of crime is sure and quick punishment of the criminal?

Few would deny the right of a citizen to take a life in defense of his own or in defense of his family. The state has just as much right and as great a duty to take the lives of criminals in defense of society. And, when we learn and put into practice the idea that laws should be made and enforced for the protection and benefit of society instead of for the benefit and protection of the criminal, our criminal problem will not be the colossal problem it is today.

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PSYCHIATRIC ASPECTS OF STAMMERING

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Recent neurological research in the field of compulsive phenomena has attracted the attention of psychiatrists to the dysfunctions of the psychomotor impulse mechanism that seem to be responsible for the clinical pictures of stammering, the compulsive neuroses, tics, and the tic-like residuals of the postencephalitic syndromes. That these clinical phenomena are released as one result of brain stem and psychic impulse-rhythm pathology or dysfunction, and are determined by inherent constitutional predispositions, seems to be indisputable, although Stenberg,[16] against the consensus of opinion believes that basal ganglion lesions are responsible for these disorders.

The encephalitic epidemics of 1919-1920 brought into the clinics of Europe thousands of cases of compulsive phenomena. Mayer-Gross and Steiner,[1] Falkiewicz and Rothfield,[2] Bertolani,[3] Ewald,[4] Skalweit,[5] and others have described numerous cases of compulsive thinking and blinking, rhythmic arm movements and stammering as encephalitic lethargica residuals.

Scharfetter,[6] Dalma, [7] de Nigris,[8] Bellavitis[9] and Meggendorfer[10] have reported cases of compulsion neuroses, tic-like phenomena, and stammering and conceived a common neurological dysfunction as the causal factor. The anxiety and fear components of the compulsion neuroses seem not to have been lacking in the cases of Meggendorfer.[10]

Numerous other investigators including Skalweit,[5] and Wilder and Silverman,[11] have hypothecated primary neurological and secondary psychological levels of disturbances in the development of compulsive muscle habituations and incoordinations. Stern[12] has described speech disturbances of the order of stammering as a compulsion "to repeat as an escape from cessation anxiety." Klages[13] compares the psychic rhythm to the peristalsis of the blood vessel, "a gross organic welling."

The psychiatric interest in this material has in no way been diminished by the mechanistic concepts that have been advanced. The disturbances of the psychic rhythm that seem to be so important in the recent considerations of stammering are extremely interesting from the psychiatric standpoint and have opened up new avenues for therapeutic approach to the most obstinate types of habit spasms.

We can accept the theory advanced by Wexberg[14] and others[15] respecting the primary or basic neurological disturbances and submit in the following cases further evidence that secondary psychological involvement gives form and meaning to the symptom complex of the individual case. The compulsive personality we believe is a normal personality, neurologically and psychologically predisposed to the development of chorea, tics, stammering, compulsions and other types of rhythmic or arrhythmic substitive escape patterns in the same way that other personalties are predisposed to gastrointestinal syndromes or emotional swings.

The cases described below are men of college age all of whom possess superior intellectual endowment. None of these young men have had encephalitis although all of them have the compulsive type of personality and intense and unstable psychic impulses. The analysis of each case is described for the purpose of outlining a rather simple therapeutic approach that seems to offer some promise as a general approach to the compulsive personality.

REPORT OF CASES

Case 1. A young instructor complained of hesitancy in speech which interfered with his lecture work. His recent appointment to the teaching staff had satisfied his desire for a college connection. The years immediately preceding this appointment had provided the necessary knowledge for this lecture work but he had devoted himself exclusively to research. On the afternoon of his first lecture he was quite shocked by the unexpected presence of the head of his department in the lecture room. He felt that his best effort was needed for the occasion and he began to question the validity of some of the theories he had thought to propound. He found that his attention was quite divided. He was acutely aware of the presence of his superior, the class seemed to have little interest in what he had to say and he attempted to reorganize his lecture as he went along. His throat became dry and felt quite tense. He stuttered a few words and became panicky. He finished the lecture with difficulty. A feeling of failure and shame urged him to abandon this teaching career and to return to research. He accepted the few words of his department head and retired to his office. The idea of continuing the lectures frightened him and he brought his problem to the psychiatrist.

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A careful search into his early childhood was rewarded with an account of stammering at the age of twelve. A business change had required the removal of the home from the quiet and dignity of an old residential district. This change of residence brought a change of school. The district into which he had moved was noisy and was populated by noisy people. He had felt quite secure in the atmosphere of the suburbs where the children had seemed quiet and unoffensive, the school small and the instructors patient and friendly. The new school was an immense structure and he was confused and bewildered by the crowd of children. The teachers seemed very strict and scolded if the lessons were not prepared. One teacher frightened him especially because she glared and frowned and had a habit of interrupting his recitation with her criticisms.

He recalled that he had become a day dreamer and quite inattentive at this time. One day his day dream was shattered by the angry voice of this teacher who had asked him a question and found him inattentive. The children were laughing because a scapegoat had been found. In his confusion he announced that he had been listening to the class recitation. A few questions proved that he was lying and he was given a public lecture upon this subject. A confession was forced from this child and he stammered in his fright and embarrassment. He continued to stammer until he finished the grade. Fear and shame were experienced each time that he had to recite. He never volunteered.

This tense, fearful reaction to instructors followed him through college. Recitations were fearful experiences but except for stumbling over unusual words while he rushed through his responses no definite stammer occurred. He recalls that early in his childhood he had been regarded as a fearful and imaginative child. He began to speak early and was precocious in his school work. At eight chorea had left him a few facial tics that became more frequent and violent during excitement. Marriage held no threat, nor had he floundered badly during his sex adjustment. Audiences made him rather embarrassed at bridge or athletic contests. He could never recall the name of a person who had been introduced to him.

From his history, we determine that he had been a sensitive, imaginative, and fearful child who had been precocious in school. He had been a day dreamer and as a direct result thereof had been conditioned against people in authority. Conspicuousness made him shameful, tense and anxious. In this tense state the fear of authority had been sufficient to provoke the stammering. Removal from his old abode had made him insecure and susceptible to such conditionings. In his present situation we find evidence of these three elements: Change of scene and habits, the fear of authority and conspicuousness. The lecture instead of research, the unexpected presence of the head of his department and the conspicuousness of the lecturer's role made him panicky and he attempted the impossible lecture reconstruction. We will not pause to consider the therapeutic approach at this point but will delay such discussion in favor of additional case material.

A feeling of inferiority led another stammerer to seek a consultation. This boy felt that his shyness and inferiority feeling were due to stammering, and we agreed with him. He had spent his childhood in a very large city. His father was an energetic business man who was well-known for his aggressiveness and pugnacity. He was opinionated and liked to talk in public. We cannot hear of such a man without having our suspicions aroused. Such types are overcompensations for an earlier sense of inferiority. The father had told the boy that he too had stammered in college but had outgrown the habit. The boy resembled the father in his body structure. The strength of the father was based upon the positive aspects of the son's negative qualities.

The patient had been a stubborn, wilful child, who defended his independence with temper tantrums. He had been shy and sensitive and fearful of other children, but ruled his own home with his temper displays. Darkness and strange people frightened him. He was easily embarrassed at school and began to stammer during his first year. Recitations and new teachers confused him and made him self-conscious. He stammered so badly that several teachers felt that he should not recite. This protection made him acutely aware of his handicap. A sensitivity to all kinds of fears was noticed early in his childhood and his unusually strong curiosity led him into many situations that frightened him. Saving and hoarding habits were formed at an early age and they have continued into the present time, varying only in nature as they have shifted to adult interests. Superstitions impressed him and made him fearful. A tendency to acquire unusual habits was noticed. Lines in the pavement could not be touched, trees had to be struck and a tune had to be whistled as he passed alley entrances. Corners could not be cut off and had to be turned at right angles. His stammering was especially embarrassing when he telephoned or asked for a railroad ticket. Situations that demanded precision, or made him feel conspicuous, precipitated the hesitancy in speech. He hesitated to commit himself to these tests. This withdrawal from responsibility and the threat of society cheated him of many satisfactions.

Briefly, we have a boy who is the son of a stammerer. He is a sensitive, fearful child with violent emotional reactions to supervision and has had chorea. The embarrassment of the unfortunate episode in the new school had shaken his confidence and precipitated the stammering. Conspicuousness, authority, responsibility, need of precision, and the fear of stammering itself caused tension, self-consciousness, blushing and the hesitancy in speech.

A brilliant young student sought aid for a hesitancy of speech that had suddenly appeared during a recitation. He was a tense, emotional boy who fairly raced through his speech. The words seemed to have no interval between them. A study of the family situation revealed two interesting facts. The father spoke quickly and was tense and excitable. The college opportunity represented the culmination of the expectations and hopes of the boy. The circumstances that provided a setting for the initial difficulty of speech were peculiar in their subtleties. Our student had made a brilliant recitation in his favorite subject. His enthusiasm had lifted him into an

expansive state. He became aware that he had become too pleased with himself. A feeling that he was the object of the sneers of the class caused him to redden and to stammer out the remainder of the recitation. This boy had pictured the college as an Elysium of brilliant students and dignified and inspired professors. No ideas of superiority had interfered with his feeling that he would be required to work hard every minute to compete with other students. His success had been intoxicating yet he still felt a social inferiority. The prominent students filled him with awe. The sudden embarrassment and self-consciousness had caused his speech to falter and he was now unable to recite without hesitancy. No difficulty in conversational situations was noticed.

Another young man presented his stammering as a minor symptom of a disabling mental condition, a form of compulsion neurosis. He was unable to study because he could not get beyond the nouns in the first paragraph in his reading assignment. A disappointment in love had destroyed all the plans for his future. The girl had never assured him that she would marry him, but he had needed to plan his life, and he used her in the role of his life mate. He had quite forgotten that they were not engaged by the time she announced her engagement to another. This disruption of his life plan annoyed him and he became quite dramatic in his disappointment. He thought of suicide and "nearly died" at the thought. He became obsessed with the fear that he might kill himself. This interfered with his study and was quite painful. An old habit of playing anagrams seemed to keep away these ideas. He read and played anagrams during his tense moments and presently was playing anagrams to the exclusion of everything else and stammering badly. The exhaustion of the possibilities of each word seemed quite important, and the nouns stuck in his mind and made his speech a stammering staccato.

The following account of such a development seems to us to be characteristic for this personality type. His grandfather had been considered eccentric. He was a wealthy man and lived in the seclusion of an old family estate. No other details of his life could be elicited except two that were peculiarly significant. He had always dined alone midst a formality that was not observed by the rest of the family and he observed a strict routine in each day's activities although he never worked. The student's father was the only son of this old man and he suicided at the age of thirty, several months after the birth of the student. This man was also considered eccentric and a great collector of books. No details could be discovered that would explain his reputation for eccentricity.

Our patient had no memory of his grandfather except a vague recollection that the vast house frightened him. The death of his grandfather occurred when the child was two years old. Fear has always colored his experiences. People frightened him and he fled into fantasy and the abstract reality of books. He recalls that his imaginative lying made his mother very unhappy and he became quite fearful of lying At the age of ten he felt guilty about each answer he gave. Prayers had to be said very carefully for a mistake made him feel guilty. Religious teachings fascinated him but he was afraid of sin. Sex difficulties have never left him and he does not feel worthy in the company of women. He is fearful that he may say something vile.

The approach of his career made him feel very timid and insecure. Plans seemed quite necessary and he had no peace until he convinced himself that his choice was perfect. Unfortunately, this girl had disrupted his plan and he had been so unfortunate as to develop this present compulsive anagram habit. The stammering is a consequence of his confusion, his self-consciousness, his struggle with the nouns and his fear of uttering a vile epithet. It appeared when he was sixteen years old and while he was in the midst of his fear that he was about to say something vile in the presence of ladies. The compulsion to say a certain vulgar word would intrude itself during every conversation. He now stammers in the presence of women but no longer has to fight the compulsive desire.

We must not expect to find such interesting settings for stammering in all cases. The potentiality to stammering is dependent upon certain inherent personality characteristics that vary quantitatively but not qualitatively in individuals of this type.

Another young man as a child had possessed the mental precocity, the imaginativeness and sensitiveness and the inordinate compulsion to imitate the gestures and habits of speech of strangers. The child did not meet a stammerer until he started to school. The stammering apparently began as just another mimicry and disappeared after an elapse of several months. The emotional stresses of puberty were accompanied by guilt, shame and self-consciousness. The learned habit of stammering reappeared and has persisted adding its own unpleasant emotional reaction to the precipitating emotional forces.

Another student presented himself for advice about the overpowering feeling of shame that accompanied his stammering. This stammer habit had several peculiarities. Its occurrence was infrequent and in situations that ordinarily would have little emotional value. The last episode had occurred in a Pullman car when he had sought information from the conductor. He stammered and experienced a horrible sensation of guilt and shame. Free associations were blocked by a question about the presence of children. With difficulty he remembered that he had been quite annoyed by the noise of two small children who, with their mother, occupied the seat just in front of his. He had moved to the end of the car and was talking with the conductor when the children raced down the aisle toward him. The stammer appeared and he was nauseated by the emotional reaction. Resistance blocked further associations and his tension and restlessness forced the examiner to pass on to an earlier experience.

Six months before he had been chatting with a friend whom he had accidentally met after a lapse of several years. The question of marriage arose and he expressed his opinion that he would never marry because children were such a bother. This detail had not been elicited in the previous interview. He went on to say that he was surprised to find that his friend was married and embarrassed

when the young father rushed to the defense of his year old son. The stammer began at this point and he "felt like a dog."

The situation immediately preceding the chat with his friend had occurred in the presence of his mother. The details of this situation were very vague and he was very unhappy and restless. He said he was worried about the feeling of shame that came upon him in his mother's presence. He almost hated her at times. He recalled that he asked a friend to stop at a corner so that he might buy a newspaper from a newsboy. The traffic was heavy and as the traffic signal changed he was annoyed by the boy's inability to find change for his ten cent piece. His friend drove on and our patient had fumed about the dishonesty of these boys who outfumbled motorists. His friend chided him about his stinginess and he stammered and experienced the same miserable feeling His attention was directed back to the experience with his mother. He could remember that she had asked him whether he still disliked children and he had stammered out an affirmative. His remark about almost hating her was challenged and he said he had been frequently upset while in her presence and his shame was always mixed with resentment and a kind of hatred.

We now had several significant clues. Children had been present in each situation. He had made a disparaging remark about a child or children immediately before the onset of the stammering and the sensation of shame. He had strong resistance to the discussion of the significance of children in these episodes. Probing caused tension and anxiety feeling. The emotional reaction in the situation of the train, the chat and the newspaper boy was shame. In the presence of his mother he felt shame and hatred. His mother seemed to be the key person in the mystery. The nature of the question from the mother implied that she knows something about his attitude toward children.

The examination turned toward a close scrutiny of the child-shame and mother-hatred reactions. Resistance was met at every point and the stammer became so bad that hours were consumed before the school situation came into the picture. He refused to be led into the grades below the sixth. We were certain that the fifth grade at school held some guilty and shameful experience and that a child or children and his mother were important figures in this drama. A question about the stammerers he had known precipitated a violent abreaction that solved the mystery.

A simple tragedy with four characters in the plot was responsible for the misfortune and disability of this boy. A young child who had been transferred from another school into the class of our patient stammered and began to cry. Our patient was amused and laughed aloud. The class had been sympathetic and his peal of laughter rang out alone. The teacher and class were very indignant and he was shamed and sent home to his mother with a note that narrated the details of the crime. He remembers that he was smarting under the injustice of the situation and expected his mother to uphold him. He was sorry but he did not understand why nobody else had laughed. His mother must have been in a bad mood, for she lost her temper and after scolding him thoroughly said "you ought to be ashamed—some day you might be punished with the same affliction." The boy was overcome with shame and guilt and rather expected that he would stammer.

We had discovered the situation that lent the dynamics of its emotional values to the young man's reactions, yet the picture was not complete. When did he begin to stammer and hate his mother and why is the episode so strongly repressed? The approach to this solution was very difficult because he had abreacted in the original situation and the therapy necessary to make him comfortable had been followed by such a lightness of spirit that he saw no reason for more probing. He was convinced that he must free himself of his hatred for his mother, and he quite spontaneously said that he could give the facts of that incident, but he was sure he no longer had the same feeling toward her.

The mother had thought the offense of her child might be forgiven if she entertained the stammering youngster at her home. Our patient had been furious and had threatened to leave home. At the end he was pleading against this punishment and humiliation. He recalls very vividly that three small boys and the stammerer came to tea. He was sullen and pouted. He delivered his simple apology and tried to conceal his tears. The tea was going quite pleasantly when the stammerer asked him a question. He does not remember the question but he remembers that he stammered out a reply. His mother immediately challenged this unusual act and insisted that he apologize for this fresh insult. In spite of his protestations the humiliation was forced upon him. The resentment of this tyranny and shame of the humiliation made him hate all children and his mother. His attitude had never changed until he came into the treatment situation. The device he used for escape from his guilt was projection. He hated children and his mother but he could not make disparaging remarks about them before other individuals without reviving his guilt, which in turn provoked the fortified shame reaction. The stammering was probably based upon atonement and punishment principles. His mother had said he would be punished with such an affliction. His fear of the punishment would be sufficient to destroy the automacy of his speech function.

A similar guilt-determined stammer was discovered in a young Jewish youth. He had sought aid for a depressive slump which was interfering with his studies. His principle cause of unhappiness was the feeling that he had not been true to his religion and unworthy of the affection of his parents. The present depressive slump had begun two weeks before his visit to the psychiatrist. The depression was not severe and was a reaction to his isolation and loneliness. This emotional reaction could easily have been adjusted, but we could not allow him to continue in his self-accusatory brooding. A short intensive treatment course solved this problem. As a small boy he had found his afternoon Hebrew lessons very inconvenient as he wished to play with other children. His parents had provided him with an excellent instructor—an old friend of the family who was happy to busy himself with the son of his friend. The boy was very conscientious and quite religious, but his attention was divided and the pull of the sounds of play was very strong.

He was not sure of his Hebrew and a tendency to hesitate over the strange words developed into

quite definite stammering. He soon found that he was alarming his parents by his hesitancy in speech and he exaggerated the disturbance until a doctor advised a reduction in the amount of time devoted to study. He escaped his Hebrew lessons. The stammer disappeared after a few years. He has never learned to read Hebrew and has strong guilt feelings about his deceitful rejection of his teacher's efforts. An unfortunate social rejection stung him deeply, and he turned to the faith of his fathers for support. In his unhappiness he found he could not honestly feel that he deserved to be called a Jew. He exaggerated the temptation and deceit of his youth into the hypocrisy of the adult. The religious rituals meant nothing to him and he suffered an intense loneliness. The stammering occurred with Jew or Gentile because he felt that he had rejected the one and was rejected by the other. The boy needed a good heart to heart talk with a Rabbi, and this medicine relieved him sufficiently for a clarification of the Jewish and Gentile relationship. He became quite happy and clung tightly to his restored religion.

The study of the personality of the stammerer is rewarded with data that reveals the common denominators of these personalities. The percentage of stammerers who have stammerers as relatives is very large. We have observed that the stammerer has a compulsive tendency towards mimicry and is a muscle-function conscious individual. He readily becomes aware of automatic muscular activities and is inclined to excite volitional interference in these acts. He overreacts to self-consciousness and like the average golfer before the crowd of the starting tee is not content with a free effortless swing, but must hold arms, feet and head correctly and in addition drive fifty yards farther than he has ever been able to drive. The timing and automaticity of his game is gone and he has lost his skill. Embarrassment, guilt, shame—a desire not to be worsted, and a lack of confidence are equally capable of the destruction of the automaticity of the behavior.

These function-conscious personalities not only stammer in speech but may stammer in any muscular activity that can be learned into automaticity. The tennis player may be shown the proper form for a stroke, but he becomes skillful in direct relation to his ability to coordinate sight, muscle sense and the necessary synchronization of the muscle action into an unconscious automatic act. Practice makes the grooves deeper and the act more automatic. If the expert attempts to analyze his form into its component parts and demonstrate them he not only fails in his purpose but temporarily ruins his game. Only a few professionals teach their own strokes, for they have no way of knowing the exact nature of their form. The individual who learns muscular skill easily must have all the valuable characteristics of the stammerer. He must have muscle sense, imitativeness, imagination and the intense psychic impulse. In order to avoid a stammer, he must be able to lay down these patterns and to separate them far from the interference of consciousness.

The observer senses that automaticity does not separate widely from the consciousness of the stammerer. An emotional disturbance associated with self-consciousness seems to lower the threshold to muscular sensation, and the volitional and the automatic controls run together to the confusion of the organism. A failure and disorder of this sort destroys the correlation of muscle synchronization with the rhythmic impulse of the psycho-motor center. It is quite easy to demonstrate that the stammering results from volition interference by subjecting the stammerer to a few tests. Ask the stammerer to speak in a fixed rhythm. Ask him to sing the words of a song. He will not stammer. If you will change the topic under discussion to the topic of stammering, your friend who has been talking for twenty minutes about an impersonal matter will immediately stammer. A stammerer will often speak without difficulty if his attention is diverted from his speech mechanism. Excitement and enthusiasm and all similar tensions are usually accompanied by an increase in stammering as they increase the muscle consciousness of the individual. The immediate response to suggestion demonstrates the hair-trigger sensitivity to muscle function that differentiates the stammerer from the individual who has no speech defect. Observations lead us to believe that the coordination of the muscles of speech suffer from this excessive interest in the component muscle-functions and the desired result of the activity.

The chap who has dropped a cup of tea upon a memorable occasion, allows or must allow the unpleasant emotional values of that experience to insist that he be unusually careful at the next tea. He awaits the cup with anxiety and anticipation of difficulty. His hand is tense and flushed. The muscles are stiff, and as he reaches for the cup, his fear of being clumsy makes him take the grasping function out of the care of the "undependable" automatic control and force his volitional control to assume the responsibility. The hand trembles, and the balance of the muscle function is lost. The muscles stammer and he either drops the cup or he sounds like a bell-cow as he takes his place in the room. Of course his embarrassment and lack of poise make him apologize for his tremor, and he can only be more anxious the next time he has to take a cup from his hostess.

The fear of making a spectacle of oneself is little more disturbing to muscular harmony than

the feeling of the need to be precise. We have all seen the poor "money player" go to pieces under the strain of competition. We recognize the hostess who feels that she must be unusually charming and sophisticated. What poise she really has is lost in her artificiality of manner—a form of stammering. Many individuals who speak carelessly try to be so painfully precise on occasions, and the grimaces and accentuated enunciations are akin to stammering. The tendency to change the modulation and tone of the voice while telephoning is an artificiality that is akin and conductive to stammering. The differences between drawing room and casual conversation have the same origins and same potentialities. Our friends who try to be very lucid upon occasions and who "I mean" and "that is to say" us to death are stammerers. Individuals who do not stammer in their native language very often stammer badly in a foreign language because of the elements of uncertainty that arise on the occasion for reading aloud or speaking.

We therefore base our therapeutic devices upon these observations. We recognize that a certain type of person is sensitive, emotional, intensely curious, and inclined to feel inferior. This individual is very observing and is inclined to repeat and take for his own the tic-like or rhythm disturbance behavior patterns of his contacts. He is susceptible to chorea. As a result of his personality structure, the experiences of reality tend to diminish his self-confidence. He is not sure of the merits of his own performances and senses a need of reinforcing and making more precise his actions. The learned muscular habits are not widely separated from the consciousness. No confidence is placed upon unaware activity. The habit of focusing the total interest upon a functioning part becomes automatic in operation. Fear of failure or feelings of need for precision provoke total muscle-consciousness. The defenses against these precipitants, elation, satisfaction, and self-confidence, are not strong in these individuals and are easily undermined by feelings of embarrassment, inferiority, shame or guilt. The attention focuses upon the function and the make-shift volitional control of the function can only result in stammering.

We must determine for each patient the extent of his inherent predisposition to this volitionalization of the automatics. The feelings of inferiority must be analyzed and the repressed emotion allowed to escape from the subconscious. The habits of reinforcement must be broken up and the emotional need negated by reeducation. The patient must be provided with rhythm controls that will provide regularity of accentuation to the speech. Practice in division of attention tends to break up the destructive habit of focusing upon the function. The greatest problem of stammering is almost humorous. The patient must forget that he stammers. The consciousness of his problem sets in motion all of the forces that make him stammer. The stammerer is in the position of the avaricious king who had demanded of the alchemist the secret of the transmutation of metals. The alchemist surrendered the details of the process but warned the king that he would be unable to perform the transmutation if he thought of the alligator at any time during the lengthy process. The king was so anxious to keep away from the thought of the alligator that he could think of nothing else. The stammerer is thus stammer-conscious. The general position of the stammerer must be made sufficiently strong to make impregnable his resistances against the precipitating and undermining effects of his guilt and shame.

We do not feel that tricks and devices can do anything but harm. Each patient arrives for treatment with many devices of his own choice. He stretches his neck. He grimaces and twists his head. A deep "ah" precedes difficult words and he rubs his ear to reinforce his efforts. The cosmetic effect of these devices is not pleasant and the tics that are the consequences of the use of these reinforcement devices cause the patient to seek aid more often than the speech defect.

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MARCH, 1934

EDITORIALS

COUNTIES RECEIVING FEDERAL RELIEF FUNDS

We believe most of the component societies in the counties now receiving Federal relief funds have established or will establish cooperative activities with the county Federal relief agent for the physicians in the county to receive payment for medical service to persons on the relief rolls.

We will repeat statements made in previous issues that it is necessary for the officers of the county medical societies to confer with the county chairman of the Federal relief funds in order to initiate the service. The Government proposes to pay a fee of approximately one half of the minimum fee customarily charged pay patients for service in their homes and for office visits. Fees for obstetrical service were fixed at a maximum of $10 but this item has been revised and the fee adjusted to 50 per cent of the customary minimum fee for obstetrical service but includes prenatal and postnatal care.

We have just received from Mr. A. R. Gephart, field director of the Missouri Relief and Reconstruction Commission, in charge of relief funds, a revised list of the counties which are entitled to enter into an agreement with the county relief committees. This list will be found on page 122 of this issue.

TRAINING IN MILITARY MEDICINE FOR ARMY MEDICAL RESERVES

A course of inactive training in military medicine combined with clinical training in some branch of medicine or surgery will be held at the St. Louis University School of Medicine and affiliated hospitals from April 8 to 21. This inactive duty training will follow the Skinner plan and the military features will be under the personal supervision of Dr. George A. Skinner, Surgeon, Seventh Corps Area, Omaha, Nebraska.

The course will be applicable to both general practitioner and specialist. The morning hours will be devoted to purely professional subjects selected by the student officers and the afternoon hours will pertain solely to medicomilitary subjects. The evening hours will be filled by a lyceum course of general interest.

Applications for this course should be made to Dr. Skinner or to Major James E. Phillips, M.C., St. Louis University School of Medicine, St. Louis. Applications should state the character of work the candidate desires to follow in the morning hours. All student officers are expected to attend and participate in the afternoon and evening sessions. The invitation to accept this course of study without charge is extended by the St. Louis University; the project is without expense to the Government. One hundred hours' credit will be given those who take and complete the course and those whose time will not permit this may join or leave at any time and receive credit for the hours spent in training. Uniforms will be optional.

ANNUAL SESSION OF MISSOURI PACIFIC PHYSICIANS

The fifth annual meeting of the Medical Association of the Missouri Pacific Railroad convened in Memphis, Tennessee, January 26 and 27 at the Peabody Hotel. The president of the association, Dr. J. E. Castles, Kansas City, presided at the scientific sessions. Approximately 250 members were in attendance.

Scientific lectures were presented in the morning and afternoon sessions of the first day and clinics occupied the half-day session on January 27. A round-table luncheon for eye, ear, nose and throat specialists was given at noon of the first day and a banquet in the evening.

Missouri physicians appearing on the program were Drs. J. Edgar Stewart, L. B. Harrison, Allen B. Potter, E. P. North and Ernest Sachs, St. Louis. Drs. O. B. Zeinert, St. Louis, and J. E. Castles, Kansas City, delivered addresses at the banquet and Drs. E. P. North and Allen B. Potter, St. Louis, were in charge of the round-table luncheon.

Dr. L. J. Kosminsky, Texarkana, Arkansas, was elected president of the association and Dr. J. A. Lembeck, St. Louis, was reelected secretary. The place of meeting for next year was not determined.

WOMAN'S AUXILIARY ESTABLISHES QUARTERLY BULLETIN

For some time the Woman's Auxiliary to the Missouri State Medical Association has been troubled by the problem of reaching all the

members throughout the year. The Journal of the Missouri State Medical Association has carried auxiliary news in each issue but The Journal is directed to the physician and many of the auxiliary members do not have opportunity to read this news and expense of postage makes it impossible for The Journal to be sent direct to auxiliary members. For several months the auxiliary, under the direction of President Mrs. Hudson Talbott, St. Louis, has contemplated a publication to go direct to auxiliary members. In January the first issue of the *Quarterly Bulletin* of the Woman's Auxiliary to the Missouri State Medical Association was mailed to all members. The bulletin contains four pages of reports of various committees and their work, messages from the officers and news. The bulletin carries some advertising and it is planned that enough advertising will be carried to support the publication. Mrs. Talbott and her coworkers have accomplished a commendable piece of work.

GOLDEN JUBILEE OF ANNALS OF SURGERY

The *Annals of Surgery* will this year complete fifty consecutive years as a surgical publication. When Dr. Lewis Stephen Pilcher, New York, advocated the establishment of the *Annals of Surgery* he probably did not expect that he would hold the editorial chair continuously for the next fifty years. However, this year the consummation of such service has been realized and the publisher, the J. B. Lippincott Company, is celebrating the journals half century of existence and progress under Dr. Pilcher.

Dr. Pilcher received his education at the University of Michigan, the youngest matriculant and the youngest graduate the school has ever had. After receiving his master's degree he began his study of medicine but interrupted his studies to volunteer as hospital steward during the Civil War. He completed his medical studies at the University of Michigan School of Medicine after the close of the war and began practice in a rural district in Michigan supplementing his income by teaching school. He soon began postgraduate study and afterward became Assistant Surgeon in the United States Navy for a time.

Of the *Annals of Surgery* and Dr. Pilcher the J. B. Lippincott Company says:

The *Annals of Surgery* was the first surgical journal in the English language. It has been guided continuously by a single hand, Dr. Pilcher, who originated the *Annals of Surgery* in 1885 and has continued as editor to the present day. It has always reflected its editor's standards of quality. Dignified, sincere, scientific, it has maintained its excellence. As the official organ of the American Surgical Association, the New York Surgical Society, and the Philadelphia Academy of Surgery, it has profoundly influenced American surgery. It has inspired a high quality not only in surgical journalism but in surgical practice as well. It has for fifty years steadfastly kept the faith as a true monthly review of surgical science and practice. And for this, medicine owes a debt to this one man.

Two journals combining medicine and surgery were established before the *Annals of Surgery*, the *Boston Medical and Surgical Journal* (now the *New England Journal of Medicine*) in 1828 and the *New Orleans Medical and Surgical Journal* in 1844, and several journals dealing with medical topics, but the *Annals of Surgery* is the oldest journal limiting its material to surgical topics.

NEWS NOTES

Drs. William T. Coughlin and Ralph Kinsella, St. Louis, were guest speakers at a meeting of the Madison (Illinois) County Medical Society at Collinsville on February 2.

Dr. E. A. Doisy, St. Louis, was the guest of the American Chemical Society at Kansas City, February 14, and spoke on "The Internal Secretion of the Ovaries." The medical profession was invited to attend the lecture.

Dr. Richard L. Sutton, Kansas City, was the guest of the Chicago Dermatological Society and the Mississippi Valley Dermatological Association at Chicago, January 20, and spoke on "Snapshots in the Artic."

The Menorah Hospital, Kansas City, recently received a gift of $25,000 from Mr. Edgar L. Berkley. The gift was made in memory of the donor's parents, Mrs. Nana Berkley and Mr. Maurice Berkley, one of the founders of the institution.

The Mid-West section of the American Congress of Physical Therapy will convene March 13 at Indianapolis, Indiana. Clinical demonstrations will occupy the morning session and scientific addresses will be delivered in the afternoon and evening.

The Tumor Clinic at Barnes Hospital, St. Louis, gave a symposium on "Carcinoma of the Buccal Mucous Membranes, Lip and Neck," February 5. Drs. Vilray P. Blair, Barret Brown and Sherwood Moore, St. Louis, presented a clinical demonstration of new technic in surgery and radiology.

Dr. Willard Bartlett, Sr., St. Louis, as the guest of the Herrick Clinic, addressed the Medical Association of the Isthmian Canal Zone February 6 at the Gorgas Memorial Laboratory, Exposition Grounds, Panama, R. de P. He spoke on "The Newer Phases of Gallstone Disease" and "Therapeutic Fecal Fistula."

Dr. Archer O'Reilly, St. Louis, delivered the fourth of a series of eight lectures sponsored by the American Association of Hospital Social Workers at Washington University School of Medicine, St. Louis, February 26. Dr. O'Reilly spoke on "Psychological Considerations of Some Orthopedic Problems." Dr. Hayward Post, St. Louis, will deliver the fifth lecture on March 5.

Dr. Arthur W. Proetz, St. Louis, will be the guest of the Royal Society of Medicine in London, England, March 2. He will address the section on nose and throat describing his research work on ciliary action in the sinuses in the prevention of infection illustrating with motion pictures. He will visit in Europe for about a month before returning to St. Louis.

Father Alphonse M. Schwitalla, St. Louis, dean of St. Louis University School of Medicine, was on the program of the thirtieth annual Congress on Medical Education, Licensure and Hospitals in Chicago, February 12 and 13. Father Schwitalla opened the discussion on an address by Dr. Justin Miller, Durham, North Carolina, on "Philosophy of Professional Licensure."

Dr. Arnold Jackson, Madison, Wisconsin, is making a survey on the incidence of cretinism in the United States and is asking the cooperation of physicians throughout the country. He wishes the information to include name, address, nativity, age, sex, physical characteristics, brief clinical history, presence or absence of goiter, mental status, results of medication and photographs, where possible. When the survey is completed the data will be turned over to the American Medical Association. This is an important survey and it is hoped Missouri physicians will cooperate fully. Data should be sent to Dr. Arnold Jackson, Jackson Clinic, Madison, Wisconsin. On advertising page 10 will be found a form which physicians are requested to fill in and mail to Dr. Jackson.

Members who attended the Kansas City session will recall the splendid address Dr. Jackson delivered as the guest speaker on "The Diagnosis and Treatment of Diseases of the Thyroid Gland."

Dr. Max C. Starkloff, St. Louis, was the guest of honor of the St. Louis Medical Society at a meeting and reception at the Society's building January 27. Dr. A. T. McCormack, Louisville, public health officer of the State of Kentucky, and the Honorable Henry Kiel, former mayor of St. Louis, paid high tribute to Dr. Starkloff who for thirty-seven years was health commissioner of St. Louis. Dr. Elsworth Smith, St. Louis, introduced the speakers. Following the meeting about 400 persons attended the reception in Dr. Starkloff's honor.

A shipment of fifty milligrams of radium was mailed special delivery by the Quincy (Illinois) X-Ray and Radium Laboratories on January 16 to Dr. Donald D. Stoner, Flatonia, Texas, and was never received at its destination. On January 20 Dr. Stoner made inquiry by wire as he had not received the radium and postal investigations were begun at once. To date the package has not been located nor has it been determined whether it has been lost or stolen. The package was valued at $3000 and contained four monel metal needles measuring 27 by 1.75 millimeters each containing 12½ milligrams of radium.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. Stanley S. Burns and Dr. D. B. Stutsman, St. Louis, were the guests of the St. Francois-Iron-Madison County Medical Society January 26 at Farmington. Dr. Burns spoke on "Mastoiditis" and Dr. Stutsman spoke on "Chronic Prostatitis; Present Day Treatment."

The Nodaway County Medical Society had as its guests at Maryville, February 7, Drs. E. P. Heller and E. Kip Robinson, Kansas City. Dr. Heller spoke on "The Modern Treatment of Fractures" and Dr. Robinson spoke on "Avoiding Complications in Gynecological Radium Therapy."

On February 7 Dr. W. J. Stewart, Columbia, was the guest of the Buchanan County Auxiliary and spoke at a public relations luncheon meeting at St. Joseph on "The Care of Crippled Children."

Dr. C. C. Conover and Dr. Theodore H. Aschmann, Kansas City, were the guests of the Linn County Medical Society at Linneus February 22. Dr. Conover spoke on "The Circulation of the Myocardium in Health and Disease" and Dr. Aschmann spoke on "Causes and Treatment of Sterility."

At the March 1 meeting of the St. Louis Trudeau Club the following program was given:

Moving picture of a thoracoplastic operation, presentation of patients and roentgen ray films demonstrating thoracoplasty, oleothorax, selective pneumothorax and phrenic neurectomy were conducted by Drs. L. C. Boisliniere, A. C. Henske, J. L. Mudd and C. W. Ehlers of the staff of Mt. St. Rose Sanatorium.

Presentation of patients demonstrating nontuberculous diseases such as lung abscess, fusospirochetosis, lung tumors, fungus diseases, silicosis, subphrenic abscess, and other nontuberculous lung diseases were conducted by Drs. Ralph A. Kinsella, G. O. Broun, L. G. McCutchen, E. L. Myers, Clyde Ernest Kane and H. I. Spector of the staff of the Desloge Hospital.

The Southern Medical Association at its twenty-seventh annual meeting in Richmond, Virginia, November 14 to 17, 1933, adopted a resolution designed to further the chemical analysis of foods upon a broad and impartial scale. The resolution proposes that the Federal authorities undertake this work in collaboration with selected medical schools in different sections of the country. In this way sectional differences in food values would be determined and would aid in the solution of certain deficiency diseases. Cooperation of state and national medical organizations was requested in the resolution. Dr. William Weston, Columbus, South Carolina, is chairman of the committee provided for in the resolution. Dr. M. P. Ravenel, Columbia, Missouri, and Dr. J. E. Knighton, Shreveport, Louisiana, are the other members of the committee.

A medico-military symposium will be conducted at the General Hospital, Kansas City, March 12 to 17 under the auspices of the Kansas City Southwest Clinical Society and the medical department, Seventh Corps Area, United States Army. Clinical lectures with patient and lantern demonstrations will be presented on infectious diseases, diseases of the heart, chest and gastro-intestinal tract by members of the Kansas City Southwest Clinical Society. The military program consisting of three one hour lectures daily after 4 p. m. has been outlined by Lieutenant Colonel W. Lee Hart, M.C., Medical Inspector, Seventh Corps Area. Medical, dental and navy reserve officers will receive credit for attending the symposium.

On the evening of March 13 the Jackson and Wyandotte (Kansas) County medical societies will be in charge of the program. Lieutenant Colonel W. Lee Hart and Lieutenant Commander Reuben H. Hunt, M.C., United States Navy, will be guest speakers.

On March 15 the Kansas City Society of Ophthalmology and Otolaryngology will hold an all-day meeting at the General Hospital with diagnostic and operative clinics presented by Dr. W. P. Wherry, Omaha, Nebraska, and Dr. C. S. O'Brien, Iowa City, Iowa.

The Kansas City Academy of Medicine will hold its regular meeting the evening of March 16 at the Ambassador Hotel with Dr. Charles Doan, Columbus, Ohio, of the department of medical and surgical research, Ohio State University, as guest speaker.

The program on March 17 will be presented by the Kansas City Dermatological Society as a clinic on all types of syphilis.

Presiding jointly at the sessions on consecutive days of the symposium will be Drs. H. L. Jones and Herbert L. Mantz; Drs. Max Goldman and P. H. Owens; Drs. E. R. Deweese and A. M. Ginsberg; Drs. J. V. Bell and W. M. Ketcham; Drs. J. E. Stowers and Hugh Wilkinson.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Fairchild Bros. & Foster
- Soluble Stomach Extract (Fairchild)

Gilliland Laboratories, Inc.
- Rabies Vaccine—Gilliland (Semple Method), 14 vial package

Hynson, Westcott & Dunning
- Ampules Solution Antimony Thioglycollamide, 0.4 per cent, 10 c.c.
- Ampules Solution Antimony Sodium Thioglycollate, 0.5 per cent, 10 c.c.

Lederle Laboratories, Inc.
- Tablets Cod Liver Oil Concentrate (Lederle)

Eli Lilly & Co.
- Metycaine
  - Ampoules Metycaine 1 %, 1 c.c.
  - Ampoules Metycaine 2% and Epinephrine (1:25,000), 1 c.c.
  - Ampoules Metycaine 2% and Epinephrine (1:50,000), 2.5 c.c.
  - Solution Metycaine 2%
  - Tablets Metycaine, 0.15 Gm.

E. S. Miller Laboratories
- Ampoule Sterile Solution Dextrose, U. S. P., 50 Gm., 100 c.c.
- Ampoule-Vial Sterile Solution Dextrose, U. S. P., 10 Gm., 20 c.c.
- Ampoule-Vial Sterile Solution Dextrose, U. S. P., 25 Gm., 50 c.c.
- Ampoule-Vial Sterile Solution Dextrose, U. S. P., 50 Gm., 100 c.c.

National Drug Company
Refined Diphtheria Toxoid (Alum Precipitated)
Parke, Davis & Co.
Ventriculin, 500 Gm. bottle
Soluble Gelatine Capsule Parke-Davis Haliver Oil, Plain, 3 minims
Schering & Glatz, Inc.
Urotropin
Tablets Urotropin 5 Grains (0.33 Gm.)
Tablets Urotropin 7½ Grains (0.5 Gm.)
Euphthalmine Hydrochloride
E. R. Squibb & Sons
Refined Diphtheria Toxoid Alum Precipitated—Squibb
Ucoline Products Co.
Ucoline Standardized Cod Liver Oil

OBITUARY

FRANK B. FUSON, M.D.

Dr. Frank B. Fuson, Larned, Kansas, formerly of Mansfield and Springfield, Missouri, a graduate of Washington University School of Medicine, St. Louis, 1886, died February 4 of general sepsis following an infection of the face. He was 75 years old.

Dr. Fuson began his practice in Springfield and continued there and in Mansfield for about thirty years. He was for a while connected with the Missouri Sanitarium at Nevada. He was president of the Missouri State Board of Health during Governor Hadley's administration and was prominent in work at various state hospitals.

Since 1931 Dr. Fuson has been assistant superintendent of the State Hospital at Larned, Kansas, and was allied with the Kansas State Medical Association. He was a member of the American Psychiatric Society.

Dr. Fuson was a man of much ability and much poise and had a host of friends both in Missouri and Kansas.

He is survived by his widow, Mrs. Mary Fuson, a daughter, a sister and two brothers.

GODFREY O. CUPPAIDGE, M.D.

Dr. Godfrey O. Cuppaidge, Moberly, a graduate of the Royal College of Surgeons, Dublin, Ireland, 1882, died at his home January 1 after an illness of several months. He was 74 years old.

Dr. Cuppaidge was born at Castle Rea, County Roscommon, Ireland. His father was an eminent physician in his native land. Dr. Cuppaidge received his education in England and Ireland. After receiving his medical degree he spent a year in postgraduate study in the Kings and Queens College of Physicians and Surgeons and came to America the next year. He began his practice in Morgan, Texas, and after three years moved to Middle Grove, Monroe County, Missouri. He remained there until 1896 when he moved to Moberly.

In 1916 he was promoted to major in the United States Army Medical Corps and sent to the Mexican border. He had served in the Missouri National Guard since 1911. In 1917 when the United States entered the World War he again was called into service and after several transfers was located at Camp Doniphan, Oklahoma. He received his discharge in March 1918 and returned to Moberly to resume his practice.

Dr. Cuppaidge was a loyal member of organized medicine. In 1923 he served the Randolph-Monroe County Medical Society as president. He was delegate to the Annual Meeting in 1926 and alternate delegate in 1927, 1928 and 1929. He was elected an honor member in 1930. He was health commissoner of Moberly for twelve years and was a member of the State Board of Health for four and a half years, part of which time he was president of the board. He was a staunch Democrat and took an active interest in political as well as public affairs. He was a Colonel on Governor Major's staff.

He is survived by his widow, Mrs. Blanch Cuppaidge, two daughters and two grandchildren.

MISCELLANY

COUNTIES RECEIVING FEDERAL RELIEF FUNDS

County	*Chairman*
Barry	John Ray, Cassville
Barton	H. C. Chancellor, Lamar
Bates	Paul Levy, Butler
Buchanan	George H. Vineyard, St. Joseph
Butler	Clarence O'Neal, Poplar Bluff
Camden	Morgan Moulder, Camdenton
Carter	E. R. Burrows, Van Buren
Cedar	M. H. Meyers, Eldorado Springs
Christian	Frey Johnson, Ozark
Clay	Judge E. E. Kirkland, Liberty
Cole	Clifford Scruggs, Jefferson City
Crawford	Claude Bass, Steelville
Dade	W. L. Ferguson, Greenfield
Dallas	George I. Davis, Buffalo
Dent	M. F. Roberts, Salem
Douglas	O. B. Mills, Ava
Dunklin	R. I. Jones, Kennett
Greene	Sen. F. M. McDavid, Springfield
Howell	J. W. Boyer, West Plains
Iron	Robt. P. Whitworth, Ironton
Jackson	Howard McCutcheon, Kansas City
Jasper	E. C. Abernethy, Joplin
Jefferson	Paul P. Hinchey, DeSoto
Laclede	Roy W. Butts, Lebanon
Lawrence	C. M. Reid, Aurora
Lincoln	J. B. Ellis, Elsberry
McDonald	J. V. Smith, c/o Chas. A. Porter, Noel
Macon	Earl Edwards, Macon
Madison	O. J. Ferguson, Fredericktown
Maries	Father John Fugel, Vienna
Marion	J. M. Richards, Hannibal
Miller	Dr. W. L. Allee, Eldon
Morgan	John M. Earp, Versailles
New Madrid	A. O. Allen, New Madrid
Newton	B. C. Sutherland, Jr., Neosho
Oregon	T. W. Messara, Thayer
Osage	Judge E. M. Zevely, Linn
Ozark	W. C. Boone, Gainesville
Pemiscot	W. D. Byrd, Caruthersville
Pettis	Wm. C. Courtney, Sedalia
Phelps	Col. Chas. L. Woods, Rolla
Polk	Frank L. Stufflebaum, Bolivar
Pulaski	Ralph Atwell, Crocker
Putnam	Neal Marshall, Unionville
Ralls	Harry Weaver, New London
Randolph	John P. Beuth, Moberly
Ray	W. F. Yates, Richmond
Reynolds	Jesse F. Shy, Ellington
Ripley	E. B. Johnston, Doniphan
St. Charles	Edwin J. Ell, St. Charles
St. Francois	W. H. Lemmel, Flat River
St. Louis County	Asa B. Wallace, Clayton
Scott	John J. Miller, Illmo
Shannon	George Rollins, Winona
Shelby	W. C. Hewitt, Shelbyville
Stoddard	Sen. Ralph Wammack, Bloomfield
Stone	T. A. McQuary, Galena
Taney	Rex Allaman, Forsythe
Texas	W. P. Gibbs, Houston
Washington	Henry C. Bell, Potosi
Webster	O. M. Lane, Marshfield
Wright	L. E. Miller, Mountain Grove
St. Louis City	Peter Kasius, St. Louis

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Mercer County Medical Society, January 10, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society met in special session December 14 at the State Teachers College, Kirksville.

A dry clinic conducted by a "flying team" of the Cancer Committee of the Missouri State Medical Association was presented. The team consisted of Drs. Edgar Schmitz, Leroy Sante and Charles F. Sherwin, St. Louis.

At 2 o'clock Drs. Schmitz, Sante and Sherwin spoke before a meeting open to the general public.

At 3 o'clock the dry cancer clinic was opened and twenty-three cases were examined keeping all of us busy until after 6 o'clock.

After a banquet at the Jefferson Hotel, Drs. Schmitz, Sante and Sherwin discussed their respective specialties in regard to the prevention of cancer and stressed that it was in the hands of the general practitioner to make the patient realize the seriousness of the condition and obtain relief while cure was possible. They pointed out that if this is done the mortality rate will be less. It was brought out that "the great white plague" is growing remarkably less through propaganda of the tuberculosis societies of the United States and if the same amount of publicity could be given cancer prevention, results would probably be as good.

The St. Louis men were highly appreciated and it is hoped they may come again.

J. S. Gashwiler, M.D., Secretary.

BATES COUNTY MEDICAL SOCIETY

The Bates County Medical Society met at the courthouse in Butler, January 18. Dr. G. A. Delamater, Butler, president, presided.

Guest speakers of the evening were Drs. L. S. Milne and Ralph Holbrook, Kansas City. Dr. Milne's subject was "Treatment of Acute Infections With Special Reference to Pneumonia" and Dr. Holbrook spoke on "Recent Advances in the Care of Pernicious Anemia." It was a treat for the Society to hear these two important subjects so well presented.

Guests from neighboring counties were Drs. J. T. Hornback and E. H. Liston, Nevada; C. B. Davis, Walker; B. O. Hartwell, Drexel, and T. W. Adair, Archie.

Members present were Drs. C. T. McConnell and E. E. Robinson, Adrain; G. A. Delamater, C. A. Lusk and C. W. Luter, Butler; H. A. Rhoades, Foster, and R. H. Smith, Rich Hill.

The relationship of the Federal Emergency Relief Commission to the Society was discussed but no action was taken.

A vote of thanks was extended to the guest speakers and the meeting was adjourned.

Rollin H. Smith, M.D., Secretary.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met in McAlester Hall at 7:45 p. m. February 6, having as its guests representatives from the county medical societies adjacent to Boone County, members of the nursing staffs from the Boone County and the University hospitals, the entire second year medical class from the University of Missouri and Dr. J. A. Warner, St. Louis, who was the speaker. Dr. A. R. McComas, Sturgeon, president, presided.

A communication from the Boone County Court was given to the committee on lay projects for consideration and thought, the contents to be brought up at a later meeting.

Dr. M. Pinson Neal, Columbia, announced a meeting of the Central Missouri branch of the American Society for the Control of Cancer to be held at McAlester Hall on February 15 and 16. Dr. F. L. Rector, Evanston, Ill., will speak on the 15th on "Present Day Cancer Problems."

A two-reel moving picture showing the manufacture of serums and antitoxins, taken at the Parke Davis plant, was shown followed by a lecture on "The Successful Treatment and Prevention of Bacterial Diseases" by Dr. J. A. Warner of the Medical Service Division of Parke Davis Company. A warm discussion followed led by Dr. M. P. Ravenel, Columbia.

A resolution was proposed by Dr. E. D. Baskett, Columbia, as follows:

Resolved, That the Boone County Medical Society undertake to direct a study of the incidence of tuberculosis among the residents of Boone County, and that this study shall include:

(1) A cross section study of several Boone County schools including at least one high school outside of Columbia by (a) The use of the Mantoux test, and (b) Roentgen ray of all positive reactors, and

(2) A study locating all known cases and all known contacts with tuberculosis in Boone County during the last three years; that as many as possible of these contacts be given the Mantoux test followed by roentgen ray of the positive reactors, and that the family physician examine his own patients if he wishes, and that his wishes be made known to the secretary of the Boone County Medical Society in writing so that none of his patients in school or elsewhere may be examined otherwise and that he supply the necessary data to the secretary or to a committee of the Boone County Medical Society.

Resolution seconded by Dr. S. D. Smith, Columbia, and after much discussion adopted.

It was moved that a committee be appointed to carry out the resolution. Motion seconded and carried.

The committee appointed was: Chairman, Dr. E. D. Baskett, Drs. F. G. Nifong, C. M. Sneed, S. D. Smith, and N. R. Zeigler, Columbia.

Dr. D. A. Robnett, Columbia, reported for the committee on CWA. This committee had carried out its function of visiting the local lay committee of

CWA to offer the services of the Boone County Medical Society and to formulate plans for carrying out this service. The local lay organization had been given a list of members of the Society as well as others eligible to serve and their attitude had been favorable. The twelve point plan proposed at a previous meeting was suggested to the local committee. However, a letter, specifically stating that the local branch of the CWA had no money for any purpose other than the hiring of labor and was thus unable to cooperate with the Medical Society in the manner proposed, was received by Dr. Robnett. The letter was read.

Motion that the report of the committee be accepted and the committee discharged made, seconded and carried.

The program committee requested that any member having material for a paper of his own, or suggestions relative to future programs, please communicate this to the program committee so that a place may be reserved for such contribution in the program for the year.

Maurice E. Cooper, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital at 8 p. m. January 10.

In a few brief remarks the president stated the object of the meeting as the consideration of the rules and regulations governing medical care provided in the home of recipients of unemployment relief.

The secretary read a part of the plan as outlined in the St. Louis Medical Society *Weekly Bulletin* as a basis for an agreement between the Relief Administration and the Buchanan County Medical Society. The secretary moved and the motion was seconded by Dr. E. M. Shores that the plans as read be adopted as a working basis.

After considerable discussion the secretary with the consent of Dr. Shores withdrew his original motion and Dr. W. T. Elam introduced another motion which, amended by Dr. W. L. Kenney, read as follows: "That the Buchanan County Medical Society endorse the proposition to care for the unemployed at two thirds of the regular fee schedule of the Society and that the Society furnish a roster of members who will agree with the Emergency Relief Administration to care for the unemployed on the above basis."

The president appointed the following committee to confer with the chairman of the County Emergency Relief Administration and to arrange a program of activities in this work: Drs. W. T. Elam, chairman, W. H. Minton, W. T. Stacy, A. B. McGlothlan and L. H. Fuson.

Meeting of January 17

The Society was called to order by the president, Dr. W. C. Proud, St. Joseph, in the Missouri Methodist Hospital, at 8 p. m., January 17.

Drs. F. M. Grogan and C. O. Dewey were elected to provisional membership in the Society.

The new by-laws proposed by Dr. Daniel Morton creating a committee which is appointed annually by the president to be known as the committee on state medicine was accepted by vote. The president immediately named the following to serve on that committee: Dr. Daniel Morton, chairman, Dr. H. K. Wallace and Dr. L. H. Fuson.

Dr. Floyd H. Spencer made a motion which was seconded by Dr. Chas. G. Geiger that the president appoint a committee to procure a good projector for use at our meetings and especially for use at the State Meeting in May. After some discussion the motion carried and the following were appointed on this committee: Drs. W. T. Stacy, C. S. Grant and T. L. Howdan.

A communication from H. T. King, executive secretary of the Community Chest, asking permission to pay a nominal fee to the physicians engaged by the nursing council for their clinics was read. This communication was discussed at some length by Dr. W. Roger Moore after which a motion was made by Dr. Wm. T. Elam and seconded by Dr. J. T. Stamey that this matter be referred to the committee on state medicine.

A report was asked from Dr. Elams' committee on the ERA. The secretary of this committee, Dr. W. T. Stacy, reported that sufficient time had not elapsed since their appointment for them to accomplish anything but promised something of importance at the next meeting.

The scientific part of the program consisted of a paper on "Agranulocytic Angina" by Dr. O. E. Whitsell and a paper by Robert Carson of the drug department in Missouri Methodist Hospital on "The Use of Pentnucleotide Therapy in Agranulocytic Angina."

The subjects were handled in a masterly manner by both authors and were freely discussed by the following: Drs. Daniel Morton, T. L. Howdan, C. A. Good, L. H. Fuson and A. B. McGlothlan. Many compliments were heard on the character and excellency of both addresses.

Meeting of February 7

The Society met at the Missouri Methodist Hospital. The vice president, Dr. L. Paul Forgrave, St. Joseph, presided.

The scientific address of the evening was presented by Dr. Albert H. Muench on "Sterility in the Human." The subject was well presented by the author and discussed by Drs. Wm. T. Elam, W. T. Stacy and Wm. D. Webb, discussion closed by Dr. Muench.

The application for provisional membership of Dr. Collis I. Roundy was read and referred to the censor committee for further consideration.

The private duty section of the District Nurses Association seeks approval of the Buchanan County Medical Society of a 12 hour day for special duty nurses. This was approved by the committee appointed by the president. Dr. N. W. Carle was chairman of this committee.

After considerable discussion Dr. Charles G. Geiger's motion as amended by Dr. W. T. Stacy, which reads as follows, "That the medical profession will cooperate with the nurses in what they decide to do" was passed.

The committee on state medicine, of which Dr. Daniel Morton is chairman, presented its report which was read by the secretary and approved by vote of the Society.

The advisory medical relief committee reports that they are unable to make a complete report at this time but that they are making some progress with the work and will report later. Dr. Wm. T. Elam is chairman of the committee and Dr. W. T. Stacy is secretary.

The committee appointed to purchase a projectoscope reported that they will have a projectoscope at the next meeting for approval.

A letter was read by the secretary from the Missouri Relief and Reconstruction Commission asking this Society to cooperate with them in the work of caring for crippled children. By motion this matter was tabled until next meeting.

Emmett F. Cook, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce rooms at Cape Girardeau January 8. Dr. H. V. Ashley, Cape Girardeau, newly elected president, called the meeting to order at 8:15.

Members present: Drs. B. W. Hays, Jackson; M. H. Shelby, J. H. Cochran, H. L. Cunningham, O. L. Seabaugh and C. A. W. Zimmermann, Cape Girardeau.

The president appointed Drs. M. H. Shelby, J. H. Cochran and O. L. Seabaugh as members of the program committee for 1934.

A letter from Dr. E. J. Goodwin under date of December 28 was read. It offered suggestions re an agreement between the Society and the County Federal Emergency Relief Administration for the medical care of indigent sick persons in their homes. A copy of the rules and regulations governing the provisions accompanied the letter.

Dr. Cochran explained that after an investigation he had learned that Cape Girardeau County had not applied for such relief because it had not exhausted its own efforts. No further action was taken in the matter.

President Ashley presented a letter from Dr. Ellis Fischel, St. Louis, chairman of the State Association Committee on Cancer. The letter outlined a plan by which a cancer program might be put on in Cape Girardeau. The letter was favorably received. Dr. Shelby moved that Dr. Ashley communicate and cooperate with the Councilor, Dr. U. P. Haw, Benton, to arrange the program.

A letter from Dr. C. E. Fallet, DeSoto, recently elected president of the Southeast Missouri Medical Society, suggested that the Southeast Society hold several meetings annually for scientific purposes with invited speakers from other communities and one meeting to be addressed by members and for business purposes.

Dr. M. H. Shelby, Cape Girardeau, read a paper on "Otitis Media Complicating Influenza."

Dr. C. A. W. Zimmermann, Cape Girardeau, read a paper on "Secondary Acute Meningitis."

The papers were discussed jointly and extensively.

Meeting of February 12

The Society held its monthly meeting in the Chamber of Commerce building at Cape Girardeau, February 12.

Dr. H. V. Ashley, Cape Girardeau, president, called the meeting to order. Members present were: Drs. B. W. Hays, D. I. L. Seabough, D. G. Seibert, Jackson; Drs. N. F. Chostner, C. A. W. Zimmermann, and O. L. Seabaugh, Cape Girardeau.

A communication from Dr. E. T. McGaugh, State Health Commissioner, referring to a provision whereby doctors might receive some compensation for service to persons on the relief roll was read. The secretary was instructed to communicate with the disbursing officer of the CWA of this county and also with the county court in an effort to learn why our physicians were not being remunerated for their services in connection with such cases.

Dr. Ashley read a paper on "Placenta Praevia" and Dr. Seibert one on "Care of Pregnancy in the Home." Both were good practical papers and both were extensively discussed by all members present.

C. A. W. Zimmermann, M.D., Secretary.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

Members of the Dallas-Hickory-Polk County Medical Society were guests of the Federal Hospital of Springfield on January 2.

Drs. Kalb, Felix, Rogers and Fassey of the Federal Hospitals staff conducted a very interesting and instructive clinic on syphilis presenting cases typifying all stages.

Following the clinic the members were conducted on a tour of the hospital with some member of the staff discussing each unit. The hospital is an excellent institution, well equipped and well managed.

Sixteen members and the entire hospital staff were present.

The courtesy extended by the hospital staff and the opportunity to inspect the hospital were certainly appreciated.

Meeting of February 6

The Society met at Humansville, February 6, with the following members present: Drs. G. C. Plummer and V. H. Greenwood, Buffalo; Drs. J. L. Johnston and A. S. Johnston, Wheatland; Drs. R. C. Nevins, A. J. Stufflebaum, and Chas. R. Nevins, Humansville; Drs. D. E. Hammontree and D. C. McCraw, Bolivar; Dr. C. E. Bennett, Lincoln; Dr. R. E. Harrell, Urbana; Dr. J. W. Murray, Quincy; Dr. W. O. Reser, Weableau; Dr. C. H. Brown, Fair Play. The guests present were: Drs. W. S. Sewell, F. A. Harrison, Wm. C. Cheek and E. E. Glenn, Springfield.

Officers for the year were elected as follows: President, Dr. R. E. Harrell, Urbana; vice president, Dr. D. E. Hammontree, Bolivar; secretary and treasurer, Dr. J. L. Johnston, Wheatland, and member of board of censors (3 year term), Dr. V. H. Greenwood, Buffalo.

Following the election of officers several interesting patients were presented to the Society and generally discussed.

The next regular meeting will be held in Buffalo

J. L. Johnston, M.D., Secretary.

DUNKLIN COUNTY MEDICAL SOCIETY

The Dunklin County Medical Society elected the following officers for 1934 at a meeting at Kennett, December 19: President, Dr. E. G. Cope, Hornersville; vice president, Dr. Wheeler Davis, Kennett; secretary-treasurer, Dr. T. J. Rigdon, Kennett; censor, Dr. S. E. Mitchell, Malden (1 year), Dr. A. Glenn Davis, Senath (2 years); delegate, Dr. Paul Baldwin, Kennett.

T. J. Rigdon, M.D., Secretary.

GRUNDY COUNTY MEDICAL SOCIETY

The Grundy County Medical Society, at a meeting December 5, elected the following officers: President, Dr. U. C. Weston, Galt; vice president, Dr. Bertha Sheetz, Trenton; secretary-treasurer, Dr. E. A. Duffy, Trenton; delegate, Dr. W. H. Winningham, Trenton; alternate, Dr. Wm. A. Fuson, Trenton. Censors, Dr. W. H. Winningham, Trenton (1 year); Dr. O. R. Rooks, Trenton (2 years), Dr. E. C. Ambrose, Trenton (3 years).

E. A. Duffy, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at 8:10 p. m., December 19, at Joplin, with twenty-five members present.

Dr. O. T. Blanke, Joplin, chairman of the committee to arrange for a program at Fort Smith, Arkansas, reported that a tentative program had been arranged, the general subject to be "Tuberculosis." Dr. W. M. Kinney, Joplin, is scheduled to present a paper on some phase of tuberculosis; Dr. S. A. Grantham, Joplin, to talk on "Spinal Fusion in Potts Disease," and either Dr. Paul W. Walker or Dr. L. W. Baxter, Joplin, to speak on "Genito-Urinary Tuberculosis."

A communication from Dr. I. Fulton Jones, Fort Smith, concerning the program was read.

The entertainment committee for the banquet next month was appointed, composed of Dr. L. W. Baxter, Joplin; Dr. L. B. Clinton, Carthage; Dr. R. M. James, Joplin, and Dr. P. W. Walker, Joplin.

A committee composed of Dr. A. M. Gregg, Dr. S. A. Grantham and Dr. R. L. Neff, Joplin, appointed by the president at the time of the death of Dr. Robert L. Thornton, read a note of condolence and it was moved and seconded that a copy of the note be sent to Mrs. Thornton and a copy spread on the minutes. The note follows:

We have again felt the force of the inevitable agency of destruction for, on December 11, Dr. Robert L. Thornton passed over the horizon into eternity. While the Doctor's death had been expected for the last several months, nevertheless his departure has cast a gloom of sadness over us all. We shall refrain from the usual eulogies paid departed members of our profession but wish to say that we have lost a good doctor, a good friend and certainly a "square shooter," and we are sure that "Journey's End" for Dr. Thornton will be heaven.

Dr. L. C. Chenoweth, Joplin, reported further on the progress being made on the plan for the care of indigent sick saying that the state, district and county administrators of the RFC funds showed no willingness to cooperate declaring that they already had more to take care of than they could handle. In the discussion that followed Dr. R. M. James, Joplin, suggested that a telegram be sent directly to the RFC headquarters in Washington, D. C. Dr. L. C. Chenoweth, Joplin, suggested that the problem be submitted to the State Association. The chair instructed Dr. Chenoweth to immediately communicate with the State Association concerning the problem.

The first paper of the evening "The Leukemias" was presented by Dr. Revell, Pittsburg, Kansas.

Dr. O. T. Blanke, Joplin, reported a case of leukemia.

Dr. H. D. McGaughey, Joplin, reported four cases treated with roentgen ray and reviewed the principles of treatment.

The second paper of the evening, "Syphilis of the Cardiovascular System," was presented by Dr. H. E. Marchbanks, Pittsburg. A number of interesting pathological hearts were exhibited.

Meeting of January 16

A communication from the assistant secretary of the Missouri State Medical Association concerning compensation for the care of the indigent sick was read.

Dr. E. D. James, Joplin, reported a case of lymphatic leukemia.

Dr. B. E. DeTar, Joplin, gave the essay of the evening on "The Open Reduction of Fractures." The various methods and their proper uses were brought out, the chief problem being to decide when a fracture should be reduced by the open method.

The discussion was opened by Dr. S. A. Grantham, Joplin; he was followed by Drs. L. B. Clinton, Carthage; A. M. Gregg, Joplin, and R. L. Neff, Joplin.

Dr. Grantham showed two reels of motion pictures on the open reduction of a Colles' fracture and open fixation of spinal compression fracture.

Meeting of February 6

Twenty-one members were present at a meeting February 6.

There was no business transacted.

Dr. A. M. Gregg, Joplin, presented a paper on "Malignant Tumors of the Breast."

The following members discussed the paper: Drs. A. B. Clark, R. L. Neff, B. E. DeTar, H. D. McGaughey, C. M. Balsley, R. M. James, L. C. Chenoweth, and L. W. Baxter, Joplin, and Dr. L. B. Clinton, Carthage.

In the absence of the secretary, Dr. H. L. Wilbur, Joplin, was appointed secretary pro tem.

Paul W. Walker, M.D., Secretary.

LAWRENCE-STONE COUNTY MEDICAL SOCIETY

The Lawrence-Stone County Medical Society has elected the following officers for 1934: President, Dr. J. W. Smith, Aurora; vice president, Dr. L. M. Lyons, Pierce City; secretary-treasurer, Dr. V. T. Bickel, Aurora; delegate, Dr. H. L. Kerr, Crane, and alternate, Dr. J. B. Stokes, Mt. Vernon.

Vern T. Bickel, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met at the Bothwell Memorial Hospital, Sedalia, January 8 at 7:30 p. m., with the following members present: Drs. C. D. Osborne, A. J. Campbell, D. P. Dyer, A. E. Monroe, M. P. Shy, J. E. Mitchell, E. C. Snavely, W. T. Bishop, W. A. Beckemeyer, C. G. Stauffacher, C. B. Trader, Cord Bohling, F. B. Long, J. G. Love and J. B. Carlisle, Sedalia.

Miss Daniels of the Missouri Tuberculosis Society was present and gave a short and interesting talk.

A paper on "The New Racket" discussing malpractice suits was read and thoroughly discussed by the members.

Meeting of January 22

The Pettis County Medical Society met at the Bothwell Memorial Hospital, Sedalia, January 22 at 7:30 p. m.

The meeting was called to order by the vice president, Dr. W. T. Bishop, Sedalia, due to the absence of the president, Dr. Cord Bohling, Sedalia, because of illness.

The following members were present: Drs. A. L. Walter, F. B. Long, H. A. Hite, W. M. Wheeler, M. P. Shy, J. E. Mitchell, A. J. Campbell, C. G. Stauffacher, C. D. Osborne and J. B. Carlisle, Sedalia.

Routine business matters were taken up after which an interesting and instructive paper was read by Dr. M. P. Shy on "Ectopic Gestation."

Meeting of February 19

The Society met at the Bothwell Memorial Hospital, Sedalia, February 19 with the following members present: Drs. Cord Bohling, Frank B. Long, W. A. Beckemeyer, Charles B. Trader, A. J. Campbell, W. M. Wheeler, W. T. Bishop, C. D. Osborne, A. L. Walter, Milton P. Shy, Alfred E. Monroe, David P. Dyer and John B. Carlisle, Sedalia.

Routine business was transacted.

Dr. Frank B. Long, Sedalia, read a paper on "Pernicious Anemia." This was an interesting and well written paper and was thoroughly enjoyed.

John B. Carlisle, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met January 9 in the Chamber of Commerce rooms, at Moberly. The meeting was called to order by the president, Dr. C. H. Dixon, Moberly.

Correspondence regarding the care of the indigent sick was read and the president appointed a committee composed of Drs. D. A. Barnhart, Huntsville; F. L. McCormick, Moberly, and M. C. McMurry, Paris, to confer with the county chairman and, if possible, work out a plan whereby some remuneration could be received.

Dr. Julius Frischer, Kansas City, urologist, presented an interesting paper demonstrated by lantern slides describing his latest treatment of the prostate. This paper was enjoyed by all and numerous questions were asked and answered.

The following were present: Drs. C. H. Dixon, F. L. McCormick, Jesse Maddox, L. O. Nickell, C. C. Smith, M. R. Noland, L. E. Huber, R. A. Mitchell, O. K. Megee and G. I. Allen, Moberly; D. A. Barnhart, Huntsville; G. W. Held, Dalton; M. C. McMurry and J. F. Flynt, Paris, and J. L. Fetzer, Brunswick.

F. L. McCormick, M.D., Secretary.

RAY COUNTY MEDICAL SOCIETY

The Ray County Medical Society met in the courthouse at Richmond, January 9.

Present at the meeting were Drs. E. E. Gay, H. M. Griffith, L. D. Greene, T. F. Cook, G. W. Gaines, Richmond; C. E. Buehrer, Lawson; O. S. Pate, Orrick; I. E. Goldberg, Polo, and C. H. Reed, Hardin. Guests present were Drs. C. T. Ryland, T. R. Butler, J. Q. Cope and B. T. Payne, Lexington; W. A. Braecklein, W. E. Koppenbrink and D. C. Davis, Higginsville; E. L. Johnston, Concordia; Spence Redman, Platte City, Councilor of the 12th District, and Mr. E. H. Bartelsmeyer, St. Louis.

Dr. Ryland, President-Elect of the State Medical Association, gave an enlightening and entertaining talk on the country practitioner and the value of medical organization to the profession as a whole.

Dr. C. E. Buehrer, Lawson, was elected to membership.

Dr. Spence Redman gave a helpful talk on organization. He also explained the educational cancer campaign being put on by the State Association and the method of obtaining postgraduate speakers for the meetings. It was decided to set March as a tentative time for a combined Society and lay cancer meeting.

Mr. Bartelsmeyer gave a report on the status of the Federal Emergency Relief program and advised the Society to formulate some plan to take care of the work in Ray County.

Dr. Braecklein, Councilor of the 14th District, gave a short, humorous but highly educational talk on organization, fraternalism and ethics in the profession.

Short talks were also given by Dr. Koppenbrink, Dr. Butler, Dr. Payne, Dr. Davis, Dr. Cope and Dr. Johnston.

The following committees were appointed by the president: Censors, Drs. G. W. Gaines, L. D. Greene, Richmond; R. Sheetz, Orrick, and I. E. Goldberg, Polo. Social, Drs. E. E. Gay, T. F. Cook, L. D. Greene, Richmond, and C. H. Reed, Hardin. Program, Drs. T. F. Cook, Richmond; C. E. Buehrer, Lawson, and C. H. Reed, Hardin.

A vote of thanks was rendered the Lafayette County Medical Society, Dr. Spence Redman and Mr. Bartelsmeyer for their valuable help and advice in reorganizing the Society.

I. E. Goldberg, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

At a meeting in Dr. J. C. B. Davis' office, Willow Springs, at 7:00 p. m. January 25, 1934, there were present the following physicians: Drs. J. C. B. Davis and F. N. Saville, Willow Springs; Drs. A. H. Thornburgh, P. D. Gum, L. E. Toney and E. C. Bohrer, West Plains; and Dr. D. D. Cox, Pomona, representing the Howell-Oregon-Texas County Medical Society; Drs. A. C. Ames and H. G. Frame, Mountain Grove, representing the Wright Douglas County Medical Society, and Dr. W. T. Eudy, Eminence, representing the Carter-Shannon County Medical Society.

The object of the meeting was to consider the union of these several societies so that there may be larger and more profitable meetings. This union was effected between the Howell-Oregon-Texas and the Wright-Douglas societies and Dr. Eudy, himself favoring such a union, was asked to present the matter to his County Society for their consideration and approval hoping they may also come into the union. The consolidated organization is to be known as the South Central Counties Medical Society.

It was voted to hold meetings every two months in the several counties in turn, the first five to be February 22 at Mountain Grove, April 26 at Houston, June 28 at Thayer, August 30 at Ava, and October 25 at West Plains. If the Carter-Shannon County Medical Society comes into the union by that time, probably the December meeting will be held in their territory.

Officers were elected as follows: President, Dr. J. C. B. Davis, Willow Springs; secretary and treasurer, Dr. A. C. Ames, Mountain Grove; delegate from Howell-Oregon-Texas County Medical Society, Dr. A. H. Thornburgh, West Plains, and alternate, Dr. P. D. Gum, West Plains; delegate from Wright-Douglas County Medical Society, Dr. H. G. Frame, Mountain Grove, and alternate, Dr. J. A. Fuson, Mansfield. Election of delegate and alternate from Texas County was left until a later meeting when it was hoped the county would be better represented. Vice president and a board of censors were omitted by an oversight. They will be chosen later.

As there are a number of members who are so far delinquent that they can never be expected to pay up owing to the present economic condition of the country, it was voted to accept 1934 dues from such and to remit all past dues rather than to lose these men permanently from the Society membership.

As the Society has sufficient funds to make local dues unnecessary it was voted to collect for this year only the $8.00 for State Association dues.

After some informal discussion of various subjects the meeting adjourned without entering upon a scientific program.

A. C. Ames, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

12th Annual Meeting, Cleveland, June 11-15, 1934

President, Mrs. James Blake, Hopkins, Minnesota.

President-Elect, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

10th Annual Meeting, St. Joseph, May 8-9, 1934

President, Mrs. Hudson Talbott, St. Louis.

President-Elect, Mrs. Wm. H. Goodson, Liberty.

Advisory Council, Dr. J. F. Harrison, Mexico.

News Notes

Concerning the Auxiliary's *Quarterly Bulletin* launched in January two sentences from a kindly note of congratulations received from Dr. E. J. Goodwin are quoted: "The *Bulletin* is well prepared and contains much information of value to the Auxiliary and to the medical profession. I will try and find space to call attention of our members to this most worthy undertaking."

Mrs. Robert E. Fitzgerald, Milwaukee, editor of the *News Letter* of the national Auxiliary, says the *Bulletin* has won her "unstinted interest and admiration."

A visit made to western Missouri early in January by the state president, Mrs. Hudson Talbott, St. Louis, brought inspiration to all who had the pleasure of meeting her and hearing her speak of auxiliary affairs. She addressed the Jackson County Auxiliary at a luncheon in her honor given at the home of Mrs. Julius Frischer, Kansas City, January 5, and the Buchanan County Auxiliary in the home of Mrs. W. T. Elam, St. Joseph, the afternoon of January 10. At noon of the day in St. Joseph Mrs. Talbott with Mrs. W. T. Martin, Albany, were the guests of the Auxiliary executive board at luncheon.

Mrs. McGlothlan's public services, as is known, have not been confined to auxiliary interests. Among other offices she is president of the St. Joseph Community Chest Committee. A sketch of her activities appeared in the Kansas City *Times* during the St. Joseph Community Chest drive wherein Mr. Allan T. Burns, director of community chests and councils of New York City, gave her the distinction of standing alone in such an office in a city of St. Joseph's rank. The article adds, with illustrative examples: "The qualities that led to Mrs. McGlothlan's election as head of the Community Chest have been often recognized and have made her a leader in local, state and national organizations."

The Auxiliary chairman of public relations, Mrs. Floyd H. Spencer, St. Joseph, is increasingly gratified at the record the county auxiliaries are making in securing good attendance of the laity at the talks on "Control and Cure of Cancer," a project of the Committee on Cancer of the Missouri State Medical Association. The success of the public meeting at Chillicothe with a large and appreciative attendance was due in large part to the activity of the Livingston and Caldwell county auxiliaries. Other and valuable phases of public relations activity are receiving effective attention in the state.

It seems well at this time to bring some excerpts from the national Auxiliary *News Letters,* giving some glimpses of auxiliary women beyond the boundaries of Missouri. To know something of their thoughts, projects and plans should be of interest and helpful also.

On December 31 the Minneapolis *Tribune* carried New Year's greetings from prominent women of the country. Among them were the national Auxiliary president, Mrs. James Blake, Hopkins, Minnesota; Secretary of Labor, Miss Frances Perkins, and the General Federation president, Mrs. Grace Morrison Poole. It is not too late in the year to quote briefly from Mrs. Blake's valuable New Year's thought: "What shall we do with this New Year? Let the women bring faith to keep us going, faith in ourselves, in our country, above all in the goodness of providence; courage to meet vigorously whatever the New Year brings; imagination to rise above these temporary trials. We need to think sanely and to meet with patience and determination the challenge that is in the air today for every woman. May God help us to live this year with intelligent optimism and constructive common sense."

Other excerpts are:

Wisconsin has two projects this year: An intensive *Hygeia* drive, and the placement of speakers from the speakers' bureau of the state medical society.

The Richardson County, Nebraska, Auxiliary sponsors a pre-kindergarten nursery school and solves the financial problem involved by an allotment of funds from the local CWA.

A library of phamplets and authoritative literature on health subjects is maintained by the Bowie-Miller Counties (Texas) Auxiliary. This library is available to members and to other organizations for programs concerning health.

The Georgia Auxiliary follows a program outlined by a committee from the Georgia State Medical Association dealing with mother welfare. This program was approved by and is shared with many other health seeking organizations in the state.

The Virginia Auxiliary stresses this year the following points: (1) Organization of new auxiliaries; (2) educational programs for auxiliary meetings; (3) promoting health programs and projects in other women's organizations; (4) educating ourselves and the laity in the value of *Hygeia,* (5) promoting our own social activities.

The public relations project in New Jersey is for each county auxiliary to induce its county medical society to establish a speakers' bureau of competent medical men to respond to requests from lay organizations for health talks.

A Louisiana auxiliary had a unique program on musicotherapy given by an accomplished musician who is also a deep student. The musician read a paper on her subject, then demonstrated it with selected music making a test of the audience to prove her points.

BOOK REVIEWS

The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 12, No. 6. Index Number. (Philadelphia Number December, 1932.) 280 pages with 110 illustrations. Philadelphia and London: W. B. Saunders Company. Per clinic year (February, 1932, to December, 1932). Paper, 12.00; cloth, $16.00.

The December 1932 issue is the Philadelphia number and contains the index for Volume 12. This number contains 282 pages comprised of numerous articles on a variety of topics that were discussed in the clinics of Philadelphia hospitals.

Surgical Clinics of North America. (Issued serially one number every other month.) Volume 13, Number 3. (Lahey Clinic Number—June 1933) 275 pages with 98 illustrations. Per Clinic Year (February 1933 to December 1933), Paper $12.00; Cloth $16.00 net. Philadelphia and London: W. B. Saunders Company, 1933.

The June, 1933, number is the Lahey Clinic number. It contains 276 pages describing a variety of surgical conditions demonstrated at the Lahey Clinic in Boston. The numbers are profusely illustrated.

The Wisdom of the Body. By Walter B. Cannon, M.D., Sc.D., LL.D., George Higginson, Professor of Physiology, Harvard Medical School. New York: W. W. Norton & Company, Inc. Price $3.50.

This is a very able and interesting account of an important process which Cannon designates as homeostasis. According to the author, homeostasis is a term that designates the processes which maintain physiological stability in the body. In addition to the homeostasis of blood sugar, blood protein, blood fat and blood calcium, he discusses the constancy of such physiological mechanisms as water and salt content, reaction of blood and body temperature.

This work contains a large amount of physiological data described in an interesting and almost popular way. The book must be read to be appreciated and should be read by all physicians and intelligent laymen having the slightest interest in the physiology of the body. R. H. M.

Medical State Board Examinations. Topical summaries and answers. An organized review of actual questions given in medical licensing examinations throughout the United States. By Harold Rypins, A.B., M.D., Secretary, New York State Board of Medical Examiners; member, National Board of Medical Examiners; Associate in Medicine, Albany Medical College; former president, Federation of State Boards of Medical Examiners of the United States; former instructor in medicine, University of Minnesota. Philadelphia: J. B. Lippincott Company.

Both examiners and candidates have long felt the need of just such a volume as Harold Rypins presents, and in his foreword to the candidate he has expressed my often repeated advice.

The summaries he makes in each branch or division of the general field are adequate and the whole admirably coordinated. His style of composition is excellent and readable. E. P. N.

The Collected Papers of the Mayo Clinic and the Mayo Foundation. Volume XXIV—1932. Edited by Mrs. Maud H. Mellish-Wilson and Richard M. Hewitt, B.A., M.A., M.D. Octavo of 1205 pages with 233 illustrations. Philadelphia and London: W. B. Saunders Company, 1933. Price $11.50.

As in former years, the Mayo Clinic in presenting its published work for 1932 has selected those papers which would interest the general practitioner, the diagnostician, and the general surgeon, omitting those dealing more particularly with clinical specialties and pure science, and referring to many others only by title. Even so the work becomes a volume of 1100 pages. The articles are systematized under six or seven general heads, the section on the alimentary tract alone occupying about one-fifth of the book. The individual titles cover a wide range of subjects which well repay study. In a sense this collection, published annually, has become encyclopedic because of this variety. W. B.

Gastric Anacidity, Its Relations to Disease. By Arthur L. Bloomfield, M.D., Professor of Medicine, Stanford University, San Francisco, California, and W. Scott Polland, M.D., Instructor in Medicine, Stanford University, San Francisco, California. New York: The Macmillan Company. 1933. Price $2.50.

The authors have written the most authentic description of gastric anacidity that has appeared in the literature. The bibliography is unusually complete and covers the whole field of the physiologic chemistry and pathology of this condition.

They rely entirely upon the histamine test with the patient in bed under standard basal conditions before the diagnosis of gastric anacidity is made. Many clinicians will find this method impractical and will continue to resort to the office fractional test meal with oatmeal gruel. If the patient secretes no hydrochloric acid in any of the specimens one and one half hours after the administration of the meal, it is clinically a case of achylia gastrica and the patient will need hydrochloric acid whether he shows signs of malnutrition or not. Moreover, the fractional test meal gives additional information of value, especially the amount of stomach mucus secreted and the rennin ferment test. The book should be in the hands of every one interested in gastro-enterology.

H. W. S.

Dietetics for the Clinician. By Milton Arlanden Bridges, B.S., M.C., F.A.C.P., Associate in Medicine at the New York Post-Graduate Medical School, Columbia University, New York. In collaboration with Ruth Lothrop Gallup, Dietitian. Foreword by Herman O. Mosenthal, A.B., M.D., Director of Medicine at the New York Post-Graduate Medical School, Columbia University, New York. Philadelphia: Lea & Febiger. 1933. Price $6.50.

A new book on dietetics is always of great interest to this reviewer who realizes the important part diet plays in the prevention and treatment of the majority of diseases with which the average physician and clinician comes in contact. In this work Dr. Bridges had the aid of about twenty collaborators, each a specialist in his respective field, and each contributing his experience in the dietetic treatment of a special disease. Thus it might truly be said that this book represents the work of specialists.

The author does not treat the subject matter along conventional lines. Beginning with chapters on "The Mechanics of Digestion" and "The Physiology in Chemistry of Digestion," he follows with an excellent chapter on "Vitamin Factors in Diet" and one on "Foods" which contain diets from every point of view, and ends with one on "The Treatment of Foods in the Kitchen." All these chapters are excellent and complete, but the reviewer misses an equally interesting chapter on mineral substances and water.

Part II, the longest chapter in this volume, is concerned with "Diseases and Their Diets." Here the subject matter is arranged alphabetically. This, in the opinion of the reviewer, does violence to the organic structure of this subject. Why in such a high class work this arrangement should have been adopted is difficult to understand. Nobody would dream of presenting osteology, anatomy, physiology or any other such subject in alphabetical order. It is true that the shortcomings of such an arrangement are largely corrected by excellent discussions of the physiological, pathological and clinical reasons which precede every disease and are the basis and justify the principles of the various diets prescribed for the different diseases. These discussions are generally very illuminating and splendid.

The reviewer misses the new specific treatment of dysentery by "apple diet" as well as the near specific treatment of sprue by "strawberry diet" and of acute rhinitis by the application of a strict "thirst cure."

A special and complete chapter on "Pediatrics," written by Dr. N. Thomas Saxl, follows and the volume ends with an appendix containing a list of practical recipes by Ruth Lothrop Gallup with various tables and a general bibliography.

If the few criticisms which the reviewer has dared to offer are corrected he would pronounce Bridges' "Dietetics for the Clinicians" one of the best and practical works on this subject which should be in the hands of every practitioner, be he physician, surgeon or specialist. I. J. W.

Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases. By H. Warren Crowe, D.M., B.Ch. (Oxon.), M.R.C.S., L.R.C.P., Director of the Charterhouse Rheumatism Clinic; Late Cons. Physician (Vaccine Treatment) Yorkshire Home for Incurable and Chronic Diseases. Second edition. Oxford University Press, American Branch, 114 Fifth Avenue: New York. 1932. Price 80 cents.

The second edition of Dr. Crowe's Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases has been amplified by reports of results from the Charterhouse Rheumatism Clinic, the Brighten Clinic, and of a recent series of 600 cases. "Cures" and very definite improvement have been accomplished in from 65 to 85 per cent of the cases. These results are striking not only because of the favorable percentage but because the cases have been unselected and have been accepted as they present themselves in these outpatient clinics. Similar results have been obtained in 526 cases reported by general practitioners from their practice. The author believes that his method of treatment will simplify the problem of the chronic arthritic by at least 50 per cent and that it will remove large numbers from the necessity of treatment by special methods and in special institutions or services.

As an exponent of small doses of vaccine, and of the combination of multiple strains of streptococci with the micrococcus deformans (staphylococcus), Dr. Crowe differs from many others whose conception of the production of immunity is based on progressively larger doses. In the present edition he emphasizes even smaller doses of vaccine than heretofore as the optimum dose, and the avoidance at all costs of reactions as far as is possible. He illuminates this by very valuable protocols of illustrative cases.

In a very confused and very important subject, Dr. Crowe makes a contribution which is worthy of thoughtful consideration. W. B.

Minor Maladies and Their Treatment: By Leonard Williams, M.D. Sixth edition. Baltimore: William Wood and Company. 1933. Price $3.75.

Too often people with minor ailments are passed over and consequently fall into the hands of cultists. This little book deals with these subjects, colds, indigestion, constipation and diarrhea, and rheumatism. The chapter in earlier editions on goutiness has been changed to salient symptoms.

While most of these subjects are discussed in a general way there is some valuable treatment included, particularly in the last chapter on drugs and their uses.

This book is recommended especially to medical students and interns. E. E. W.

Arteriosclerosis. A Survey of the Problem. A publication of the Josiah Macy, Jr., Foundation. Edited by Edmund V. Cowdry, Washington University, St. Louis. New York: The Macmillan Company. 1933. Price $5.00.

This is a publication of the Josiah Macy, Jr., Foundation. Your reviewer would say that if the Foundation had done no other work than to publish this volume it would have justified its existence.

The volume is an octavo of 617 pages, on very heavy and calendered paper. Consequently it is tiresome to hold in the hands for reading. We would suggest that for subsequent editions a lighter paper not so heavily calendered be used.

The book is an attempt to present a statement of the present knowledge of arteriosclerosis, and its contributors are the best known in the American and European worlds. Ludwig Aschoff's introduction is probably one of the most fundamental statements on the subject of arteriosclerosis published to date, and should be available to every man who has to work on the problem. Dr. Esmond R. Long of Philadelphia writes a historical introduction. Our only criticism of it is that it is too short. We would like to know more of the views of such men as Allbutt, Huchard, and their like. Another fundamental chapter is that by Fritz Lange who writes on hypertension in relation to arteriosclerosis. This would make the reader thoroughly understand the differentiation between the two processes. Gideon Wells' contribution on the chemistry of arteriosclerosis shows us the magnitude of the subject. The popular subject for discussion nowadays, namely, coronary arteriosclerosis, is discussed by Howard T. Karsner and Alfred Cohn of the Rockefeller Institute writes the summary at the end as the twenty-first chapter. Other writers are E. V. Cowdry, A. Policard (France), Edgar Sydenstricker (Milbank Foundation), W. Ophuls, A. Avitschkow (Russia), W. G. MacCallum, Jonas Friedenwald, Stanley Cobb, Daniel Blain, E. T. Bell, George D. Williams, John H. Wyckoff. G. H. H.

Senile Cataract. Methods of Operation. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College; with the collaboration of Prof. E. Fuchs, Vienna, Austria; Prof. I. Barraquer, Barcelona, Spain; Dr. H. T. Holland, Shikarpur, Sind, India; Dr. John Westley Wright, Columbus, Ohio; Dr. A. Van Lint, Brussels, Belgium; Dr. O. B. Nugent, Chicago, Illinois. 267 pages, 183 illustrations, 112 in colors. Chicago: Chicago Eye, Ear, Nose and Throat College.

The book will be of value not only to the student but to the experienced surgeon desirous of familiarizing himself with the methods of the outstanding surgeons in ophthalmology. R. M. H.

Clinical Aspects of the Electrocardiogram. Including the Cardiac Arrhythmias. By Harold E. B. Pardee, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical College; Associate Attending Physician, New York Hospital; Consulting Cardiologist, Lying-In Hospital and Womans Hospital, New York City. Seventy-four illustrations. Third edition revised. New York: Paul B. Hoeber, Inc. Price $5.50.

This is an excellent book. It presents clearly a description of the variations observed in the electrocardiogram with a discussion of the factors responsible for them in terms at once explanatory and not too technical. It deals, as the title says, with the *clinical* aspects of the electrocardiogram; and as a guide to proper clinical application of electrocardiographic findings its value is extremely great. But, while clearly phrased, it does not sacrifice sound theory and scientific depth for simplicity in presentation. It combines these requisites for usefulness in admirable proportions.

Anyone who makes use of electrocardiography in the study of cardiac patients will do well to have this book available. If there are occasional statements with which he finds himself in disagreement, they will cause him rather to reexamine his own notions than hastily to condemn as erroneous the author's expressions.

The book is compact, is thoughtfully written, is up-to-date, and it deserves the excellent reputation achieved by former editions. D. L.

Wheat, Egg or Milk Free Diets With Recipes and Food Lists. By Ray M. Balyeat, M.A., M.D., F.A.C.P., Associate Professor of Medicine and Lecturer on Diseases Due to Allergy, University of Oklahoma Medical School; Chief of the Allergy Clinic, University Hospital; Consulting Physician to St. Anthony's Hospital and to the State University Hospital; President of the Association for the Study of Allergy 1930-1931; Director, Balyeat Hay Fever & Asthma Clinic, Assisted by Elmer M. Rusten, M.B., M.D., and Ralph Bowen, B.W., M.D. Philadelphia, Montreal, London: J. B. Lippincott Company. Price $2.50.

This book is intended to aid in preparing a satisfactory diet for allergic individuals sensitive to wheat, egg or milk. It contains a great variety of cooking recipes and tabulates all foods which contain wheat, egg or milk. The book would be more practical if daily menus had been included.

If one accepts the authors' premise, which is emphasized by text and reiterated by illustrations, that the smallest possible amount of these foods is capable of inducing allergic symptoms, the book then contains numerous inconsistencies. As examples, butter and margarine are included in the milk free recipes; bread is included in both milk and egg recipes without warning that it should be free from milk and egg; under egg free recipes, potato salad is made with mayonnaise without warning that egg free mayonnaise should be used; macaroni and spaghetti are included in the egg free group, yet in another place these foods are tabulated as containing egg.

Many of the recipes require spices, condiments and onion which very frequently are followed by allergic manifestations so that these recipes may not be satisfactory for all patients with the allergic constitution.

The book also contains short chapters which discuss the influence of specific foods upon bronchial asthma, seasonal and perennial hay fever, migraine, urticaria and eczema. Gastro-intestinal symptoms such as canker sores, lump in the throat, itching or tickling sensation of the mouth, colic, cyclic vomiting in infancy and childhood; abdominal distress, gas, belching, bloating, definite attacks of pain in the upper abdomen, periodic pains in the right lower abdomen in adults, periodic attacks of diarrhea with mucus, diarrhea, and pruritus ani are also suggested as being allergic in nature in individuals who may have or have had hay fever, asthma, hives, eczema, or sick headaches, or when these diseases have been present in the antecedents of such individuals. The influence of food upon certain types of episcleritis and iritis, as well as ulceration of the cornea, vertigo, epilepsy, arthritis, generalized pruritus, and bladder irritation are also discussed.

The layman has a penchant for self-diagnosis, the name of the affliction being based on the anatomical location of the symptom, so that it seems unwise to acquaint him with afflictions the allergic etiology of which is still in the theoretical and experimental clinical stage, and the discussion of which is much better reserved for medical circles.

Allergy is a new field of medicine; one that accurate clinical observation is constantly expanding and one that seems to promise the solution of hitherto inexplicable afflictions. Since clinical observation requires man as the experimental animal there are other factors well nigh uncontrollable in the evaluation of clinical data, but nevertheless one should strive for an accuracy of observation and a precision of procedure comparable to that of the laboratory. If allergy is to advance to its destined place, the evaluation of these clinical observations must be shorn of personal enthusiasm and be bolstered by the facts gathered by many competent observers. To prevent allergy from becoming a dietary fad (since time immemorial the diet has been responsible for all the ills of mankind and for the cure of all human ailments) it is imperative that those who write on food allergy for the layman be most conservative in their statements and combine them with the facts proved either by great clinical experience of different observers or by laboratory studies. Because this book intimates that food allergy is the cause of symptoms and clinical conditions for which that etiology is only suspected, which would lead to self-diagnosis with the consequent unnecessary dieting and probably disappointing results and delay in instituting proper medical care, and because of inconsistencies in the text which will lead to erroneous conclusions, it is thought to be in-

judicious to unreservedly place this book in the hands of the laity. R. M. K. and C. H. E.

A Text-Book of Neuropathology. By Arthur Weil, M.D., Associate Professor of Neuropathology, Northwestern University Medical School, Chicago, Illinois. Illustrated with 260 engravings. Philadelphia: Lea & Febiger. 1933. Price $5.00.

Possibly those well versed in the more recent literature bearing on neuropathology may question the advisability for the appearance of the book at this time, since so recently the very complete three volume work on "Cytology and Cellular Pathology of the Nervous System" was published in the English language in 1932. Yet, as in many works with a considerable multiplicity of authors, we find that the publication by Penfield and collaborators really presents a complete group of monographs dealing exhaustively with a large number of neurological diseases and problems instead of being a well coordinated didactic treatise. Dr. Weil's publication is a comparatively small volume and probably would interest especially the worker just beginning in these neuropathological problems. Nevertheless, it would appeal to any one interested in the subject, no matter how far advanced he might be in the histology and pathology of the nervous system. The book is splendidly divided into the various chapters of the nervous system with clear cut headings. The style and print make easy reading. Good illustrations are used freely.

All the chapters are worthy of careful reading. However, one's attention might be called in particular to a few. Chapter one carefully considers tissue changes resulting from autolysis and the several chemicals used in fixation. This is important if one wishes to eliminate all possible artefacts and changes not the result of the pathological lesions *in vivo*. This subject usually is not dealt with in a separate chapter. No doubt many errors in the past have been reported as a result of lack of knowledge on this subject. Chapter three gives a brief but adequate and comprehensive description of real changes for the glia tissues. A simple classification is presented for this much debated subject. Some of the newer conceptions of myelin sheaths and axis cylinders with their possible pathological alterations have been given appropriate attention in chapter four.

Chapter five deals in particular with metabolism of the brain and the various tissues of the central nervous system. During the last few years many new facts have been added to our definite knowledge on this subject. Attention may be called to the Winterstein table which is reproduced, giving the comparative oxygen consumption of the various organs for several varieties of animals. For those not well versed in this subject, attention might be called to the extraordinarily large quantity of oxygen consumed by the brain as compared with a number of different organs. We should know more about anoxemia. Table 10, gives a thoroughly accurate idea of the changes which occur in red blood corpuscles after they are thrown out in a brain hemorrhage.

Quite appropriately chapter seven, dealing with inflammation and infection, is a comparatively large one. Furthermore, it is all inclusive, which would perhaps satisfy advanced students. Schilder's disease and disseminated sclerosis are included in this group. Chapter nine is devoted to exogenous and endogenous intoxications. It is noted that the author criticises the terms "exogenous" and "endogenous," yet using them in the text. Chapter eleven, an important one in neurology, is devoted to degenerative diseases. The author gives due weight to the Medelian law and has divided some degenerative diseases into dominant and recessive.

The book terminates with a splendid appendix giving several tables, autopsy data and a selective group of staining technics. A. L. S.

Obstetrics and Gynecology. Edited by Arthur Hale Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology Northwestern University Medical School; Chief of the Gynecologic Service Passavant Memorial Hospital, Chicago. With 1664 illustrations. Volume II. Philadelphia and London: W. B. Saunders Company. 1933. Price $35.00.

Volume two of this classic contains sections seven to thirteen all by well known specialists in gynecology and obstetrics.

The chapter on dystocia arising from the bony pelvis is excellent, the classification of litzman being used. The author refers to the impression method of Hillis regarding the relative size of the mother's pelvis to the baby's head. This method is similar to the better known method of Müeller and it would seem that the latter should be retained.

Anomalies of the Passenger are discussed by Piper. Here the author discusses at length his axis traction forceps and his method of performing breech extraction. The forceps as illustrated appears brutal and clumsy and one doubts if every practitioner could be as skillful with such an instrument as the author claims to be. After all, the Simpson forceps or its modifications most universally meets the requirement of all practitioners.

A very lucid discussion of puerperal sepsis is given by Watson of the Sloane Maternity. Here the preventive and active treatment are conservative and logical.

The chapter on forceps by Danforth is extremely interesting and his description of indications and application of the blades is very plain. The text is enhanced by photographs depicting these maneuvers on the manikin.

The chapter on episiotomy, deals only with the midline incision. For all purposes the mediolateral or lateral incision would be more propitious since with the latter incision there is less danger of sphincter damage than with the median episiotomy. No remarks are made concerning the repair of the levator muscles when exposed by episiotomy.

The chapter on cesarean section is written by Stander, whose greatest reputation was made in the study of the toxemias of pregnancy. The operation of choice is the classical section although the low cervical operation is mentioned.

Gonorrheal diseases of the female and the cellulitis group are discussed by Curtis. The pathology, diagnosis and treatment of these conditions are adequately considered.

Gellhorn in thorough and masterful fashion has written the chapter on syphilis in women. This topic is profusely illustrated and the descriptive material is excellent. A good bibliography is appended.

The last four hundred pages of the book are given to the consideration of uterine tumors benign and malignant. The illustrations and text are in keeping with the high standard maintained in the first portion of the volume. D. T. V.

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PREVENTION OF CANCER OF THE CERVIX UTERI

GEORGE GELLHORN, M.D.

AND

KATE C. SPAIN, M.D.

ST. LOUIS

Of every 100 women with cancer of the cervix who consult us less than 20 on an average will be alive and well after five years; and although our various means of treatment are still capable of improvement, we seem at the present to have come to a standstill as far as the percentage of cures is concerned.

Under these circumstances our thoughts again turn, as they have done so often before, to the problem of prevention of cancer. While we must realize that it is extremely difficult to forestall *any* disease whose exact cause is entirely unknown, yet clinical observation has shown us three ways which may offer a remote possibility of preventing cancer of the cervix.

The first of these is good obstetrical intrapartum and postpartum care because we know that women who have borne children are afflicted with cervical cancer much more frequently than are nulliparous women. What distinguishes the two groups is the presence in one, the absence in the other, of injuries of parturition. In women who have had their children only by cesarean section, not a single case of cancer of the cervix has to our knowledge thus far been reported. Of course, there may be other still obscure factors at work. There may, for instance, be racial differences. This possibility suggested itself when Vineberg many years ago found in about 3000 Jewish patients with neglected cervical tears a much lower percentage of cancer than in a corresponding number of Gentile women.

The second procedure is based on the theory that chronic irritation is one of the causes of cancer. Assuming that this theory is correct, a chronically irritated cervix may eventually become cancerous. Chronic irritation of the cervix is brought about by laceration, infection, congestion, or friction, and if marked produces symptoms which call for treatment. In some cases the irritation will yield to various conservative measures; in others it will require surgical intervention. As to the latter, the conical excision of the cervix, or tracheloplasty, which was designed by Sturmdorf, of New York, is unquestionably the best method. It yields excellent results, is easy to perform and women are readily prevailed upon to submit to it. It is, in fact, the method of choice in all cases of chronic irritation of the cervix which cannot be cured by other simpler means. Whether it can prevent cancer is however still an open question. It is not at all unlikely that this is the case but we will have to wait many years before definite proof is obtained.

Until this time has come, we have at our disposal a third mode of cancer prophylaxis. This is derived from the observation that in a certain number of cases cancer has developed in the cervical stump following supravaginal hysterectomy for fibroids or other benign conditions. The incidence of this complication was until lately considered to be so small as to be rather negligible; somewhere in the neighborhood of one half of one per cent. More recently, however, the subject has received closer attention and as a result of this new scrutiny our former views require revision. Martzloff[1] noted that in the literature the percentage ranged between 1.14 and 3.49. Ward[2] found that cancers in the cervical stump constituted 5.3 per cent of his entire series of cervical cancer. Davis[3] recorded an incidence of 6.5 and Spencer[4] of 6.6 per cent; and in the Barnard Free Skin and Cancer Hospital the ratio is 6.9 per cent.

Still more impressive than percentages are actual figures. Branscomb[5] cited various European statistics of 50, 85 and 102 cases, respectively. As early as 1920 Polak[6] had already

From the Barnard Free Skin and Cancer Hospital.
Read before the St. Louis Gynecological Society, November 10, 1933.

collected 256 cases entirely from the American literature. Since then the number of such observations has greatly increased in this country. In the Barnard Free Skin and Cancer Hospital we had 40 cases to which may be added 4 which one of us saw in his private clientele. Of our 40 hospital cases 4 were operated upon by members of our own staff. The last of these patients came back to us this very day. We had done a supracervical hysterectomy for fibroids 7 years ago, and now she had a large cancer of the stump. Since then we have more fully realized the potential dangers of an incomplete hysterectomy, and but rarely resort to it. Although we did not even attempt a systematic search, we found in very recent American literature almost as many cases as Polak had compiled 13 years ago. For instance, Kelly[7] 46 and 6 of these within a period of two weeks; Mayo[8] 99; Ward[2] 19; Davis[3] 8; Baldwin 11; Sharples[9] 3; Stein[10] 2; Phaneuf[11] 3. Let it be said again that these 500 cases of cancer in the cervical stump were recorded in this country. Considering further that many similar cases are never reported it is safe to say that there were twice that number in the United States, not counting those in other countries, and that the complication is much more frequent than we have been led to believe.

In many of these cases the actual development of cancer in the stump could successfully have been prevented, if the original operation had been a complete instead of a subtotal hysterectomy. It has, however, been argued that the mortality from total hysterectomy is much higher than after the incomplete operation so that the prophylactic value of the former would be outweighed. The accepted statistics show a mortality of, roughly, 3 per cent after the supracervical, and of 6 per cent after the complete hysterectomy. In experienced hands, however, there is but a fraction of 1 per cent difference between the two methods, and at its most the mortality is not above 2 per cent (Masson,[12] Polak,[6] Phaneuf[11] a. o.). The fundamental explanation of the overwhelming popularity of the subtotal hysterectomy is probably this, i. e., that most operators who attempt pelvic operations are not sufficiently familiar with the technic of the complete extirpation of the uterus. We have the following instructive case in our series. A married woman of 23 was operated upon by a general surgeon and the uterus was removed by a supracervical hysterectomy together with both tubes and ovaries; the patient was then placed in lithotomy position, and a tear of the cervix was sewed up by trachelorrhaphy. Less than a year later she came to us with a cancer in the cervical stump for which we treated her with radium.

It may have been that in this case a cancer was already present in the cervix but unrecognized at the time of the operation. This has happened not infrequently, and it may be assumed in all those instances where only a short interval elapsed between the supravaginal hysterectomy and the discovery of malignancy in the stump. We found 14 such cases in our series of 40. In two of the 14 cases the respective surgeons frankly admitted that they discovered the cancer in the course of the operation and desisted, from choice or necessity, from removing the cervix.

Where a total hysterectomy proved to be too difficult or altogether impossible various expedients, such as coring out, cauterization or irradiation of the stump, have been recommended; but we have found in the literature one case where after such a destruction of the gland—bearing tissue of the cervix, a carcinoma developed on the *outside* of the cervix.

The inevitable conclusion from all that has been said is, that total hysterectomy has a definite place in the prevention of cervical cancer even if it is technically more difficult and a bit more dangerous than partial hysterectomy. It should, therefore, be the routine method when the uterus has to be removed for fibroids or other benign lesions; and the subtotal hysterectomy should be resorted to only if the patient is nulliparous or has no pathological condition in the cervix.

Another potent reason why cancer in the stump should be prevented at all costs is the fate that awaits such patients. To demonstrate this we have divided our entire series of 40 cases into two groups. The first group comprises 14 cases where the cancer probably existed at the time of the incomplete hysterectomy. Of these 14, 12 died, one committed suicide about one year after treatment and only one was cured by radium. The second group of 26 cases is composed of those in whom an interval of from 2 to 27 years existed between the operation and the development of the cancer in the stump. Of these 26, 24 were treated with radium. Thirteen died, 5 were lost sight of and are probably dead, 3 were seen only in the last few months and only 4 were living one to two years later. One case was treated by operation and is still alive and well after 13 years. In other words, of 40 stump cancers only 6 could be cured.

This discussion of the preventability of cervical cancer suggests the following conclusions.

1. A disease can be prevented only if its cause is known positively. This is not the case with cancer. The prophylaxis, therefore, of cancer in general and of cancer of the cervix in particular is necessarily more or less speculative.

2. The great frequency of cervical cancers in

parous women points to trauma or subinvolution incident to childbirth as one of the etiological factors. Hence the necessity of painstaking obstetrical care during and after labor.

3. Chronic irritation is generally assumed to be one of the causes of cancer. Chronic irritation of the cervix requires treatment not only on its own account but also because of the possibility of future malignancy. When other means of treatment are inadequate the conical excision of the cervix which was designed by Sturmdorf is the method of choice. It has, however, not yet been proved that this operation actually prevents cancer.

4. Subtotal hysterectomies for fibroids or other benign conditions are sometimes followed by malignant degeneration in the cervical stump. We now know that this occurs much more often than was formerly assumed. In this paper we put 44 personal observations on record. Even at a very conservative estimate there have been at least 1000 such cases in this country alone, and *every new subtotal hysterectomy may add to this number.*

5. In many if not in most of these cases cancer of the cervix could have been prevented had the hysterectomy been a complete rather than an incomplete one. The total hysterectomy is a little more difficult and the mortality higher, but in experienced hands the difference is insignificant.

6. The danger connected with complete hysterectomy is—again in experienced hands—far less than the danger from malignant degeneration in the stump following supracervical hysterectomy; for of the patients presenting this latter complication only very few can be saved from death by secondary treatment.

7. At the present, therefore, the total removal of the uterus is the only known measure which can prevent the development of cancer in those cases where the extirpation of the uterus becomes necessary because of fibroids or other benign conditions.

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THE PROPER AND ADEQUATE TREATMENT OF SYPHILIS

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The family physician, who treats the majority of all cases of syphilis, can easily become confused by the abundant and often contradictory advice and counsel to be found in the literature of the present day. Therefore it becomes necessary from time to time to review and evaluate systems and methods for the treatment of this disease, so protean in its manifestations, so destructive to efficiency and so threatening to life.

In order to understand and appreciate treatment methods a thorough knowledge of the effect of the Spirochaeta pallida on human tissues is essential. This organism enters through a defect in the horny layer of any part of the skin or the mucous membranes and penetrates to the epithelial layer where it immediately begins to multiply. It seems probable that an adequate "dose" of spirochetes is necessary to a "take." The careful studies of Brown and Pearce and of Engman and Eberson have shown us that, in all probability, within twenty-four to forty-eight hours subsequent to the introduction of the spirochetes within the epithelial tissues, these organisms have reached the blood stream and are being disseminated all over the body. This event occurs from three to twelve weeks before any evidence of the disease is manifested to the infected individual. His first knowledge comes with the appearance of the chancre, which indicates that a particular small epithelial area of the body has produced a reaction to the presence of the spirochetes. This reaction is manifested to the patient by a papule which may grow to a size limited by the reaction of the tissues and the formation of effective local defensive forces. It is the first cellular reaction to the presence of the spirochetes and consists of a mass of round cells, plasma cells, endothelial cells and some products of inflammatory reaction. From this focus of infection spirochetes wander into the circulating fluids of the body, the lymph stream and blood stream. The neighboring lymph glands show

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evidence of enlargement, another reaction due to the presence of the spirochetes; the blood stream carries the organisms to all body tissues and in some four to twelve weeks the skin manifests its reaction to the spirochetes by the production of the early eruption (the so-called secondary eruption) of the disease. The appearance of this invasive eruption ends the primary period of syphilis and begins the early or secondary stage. During the ensuing weeks of this period the organisms, already carried to practically all the tissues of the body, encounter an increasingly effective defense mechanism, which eventually results in the destruction of huge numbers of spirochetes and a consequent involution of all of the early phenomena.

The patient then is said to enter the period of latency. This may be defined as the period in which the spirochete is prevented from rapidly multiplying and again invading the body. However, in rare instances, the balance between the defensive forces of the body and the spirochetes may be upset and a recurrent invasion of the body may take place. Usually, the latent period indicates a complete setting up of relatively efficient defensive forces which are competent to protect the body against local threats of isolated colonies of spirochetes. This is accomplished by the building up of local aggregations of cells about any threatened point of attack. The reaction thus produced is a gumma.

The patient is then said to be in the late (tertiary) stage of syphilis. However, it is biologically more correct to consider the gumma as a manifestation of relatively efficient defense mechanism in the latent stage of syphilis. The gumma is a reaction of the body to the threat of multiplication of the spirochetes at any localized point. During the invasive stage, spirochetes had been deposited chiefly about the minute blood vessels in all tissues of the body; the majority of them had been killed off by the development of the body defense mechanism but numerous small collections had been left (again chiefly about the minute blood vessels) in many if not in all tissues of the body. Any of these foci of spirochetes may be stimulated to activity by trauma, mechanical, chemical or physicochemical. The organisms begin to multiply but the body tissues now, having been educated and knowing how to handle them, immediately throw about the threatened point of attack a huge number of cells, chiefly plasma cells, which block off the areas effectively and prevent the dissemination of the spirochetes. These huge collections of cells are gummas and occurring as they do in any tissue of the body they produce symptoms dependent on their location. They may be single or multiple; they may infiltrate in multiple fashion large areas of a single organ, such as the liver; they may produce solitary or multiple ulcerations of the skin. Nevertheless, they are indications of an effective defense mechanism and are only serious in so far as they produce localized tissue destruction or pressure symptoms, as in the brain.

Thus far we have described the manifestations and states of syphilis that are easily taken care of either by the body defense mechanism or by treatment. The treachery of the spirochetal attack is not in the early invasion or gummatous phenomenon but in the slow insidious tissue reaction that is produced by the mere presence of the spirochetes in vital organs. As we have seen in the early stage, spirochetes may be deposited in various tissues of the body and may remain localized and inactive, possibly in an unrecognizable form. The life cycle of the spirochete has not been fully worked out; we know it only in its spiral form. The pathological researches of Warthin and others have shown that this organism induces a second type of reaction insidious in its attack and slow in its evolution. This reaction is characterized by the gradual replacement of normal tissue by fibrous tissue and this takes place chiefly in vital organs. It may and probably does begin early in the period of latency or even in the invasive period. This is the process that, following an aortitis, produces aneurysm. This is the common type of cardiac syphilis that leads to the cardiac syphilitic death. The reaction in the tissues of the central nervous system is more active, more rapidly progressive and is accompanied by more cellular reaction; it results in paresis and tabes dorsalis.

With this brief summary of the effect of the pale spirochete on the human organism in mind, let us attempt to outline the rational principles of adequate treatment of syphilis in its various states. In a brief time it is impossible to present detailed plans or outlines of treatment.

The evolution of treatment methods follows two main lines; the development of heavy metal therapy and the development of methods of administration. The historical details of this evolution need not concern us here; it is quite familiar to all of us that the development was treatment by mouth, percutaneous treatment, inhalation treatment, subcutaneous treatment, intramuscular treatment and intravenous treatment. The development of the latter two methods is within the memory of all of us and many are inclined to think that the older methods of treatment should be discarded, but there is still a place for treatment by mouth and for percutaneous treatment. The discovery of the effect of mercury was followed by arsenic and

then by bismuth. The controversy as to their relative value in the treatment of syphilis is still active and before it is finally decided it is quite possible that another drug may be found and the argument renewed. At the present time we may say that all three of these heavy metals have a place in the therapy of syphilis and that we cannot or should not dispense with any of them. The value of iodides in resolving the granulomatous deposits and infiltrations of the disease cannot be doubted, although all available evidence indicates that they are not spirocheticidal.

Let us now attempt to outline the general principles of the treatment of syphilis in its various stages. No inflexible systems of treatment can be used because each infected patient necessarily differs in his reaction to the treatment as well as to the disease and must be treated individually.

PROPHYLACTIC TREATMENT

As we have stated previously the dissemination of Spirocheta pallida occurs long before the chancre appears. How then shall we handle the patient who knows or fears that he has been exposed to syphilis and who has no evidence as yet of chancre? We are here faced with a dilemma. Remembering that it probably takes an adequate "dose" of spirochetes to produce a "take" and that exposure does not necessarily mean infection, are we justified in exposing such a patient to the danger of treatment? Most men, we believe, have been exposed to syphilis; only 5 to 10 per cent have acquired it. If we treat such an individual it must be with his knowledge that he may not have the disease and that he will run certain risks from the therapy. Considering the facts of early dissemination of Spirocheta pallida and the nondevelopment of the resisting powers of the tissues, we believe that these cases should be classed with the seronegative primary cases of syphilis and are inclined to insist that they be given the same course of treatment as that class of cases. The alternative is to give no treatment at all until a positive diagnosis can be made. In the latter event evidence of chancre should be watched for and serial complement fixation or precipitation tests made.

TREATMENT OF SERONEGATIVE PRIMARY SYPHILIS

The importance of the dark field in the diagnosis of syphilis cannot be overstressed. No genital lesion should be diagnosed chancroid until numerous dark field examinations have been negative. Chancroid is relatively rare, chancre is relatively common, therefore every genital ulcer must be considered luetic until the contrary is proven. By far the greatest percentage of cures is obtained in the seronegative primary stage of syphilis and every effort must be made to make an early diagnosis. These are the cases which may attain an apparent cure in a year or less of treatment.

Remembering that in this type of case we have a patient flooded with Spirocheta pallida but whose tissues have not yet built up an adequate defense mechanism, all of our efforts must be directed toward flooding him with spirocheticidal drugs. The three drugs in use in the order of their spirocheticidal activity are arsphenamine, bismuth and mercury. In view of the apparent fact of drug fastness, we believe that two drugs should be used, therefore we choose arsphenamine and bismuth for these cases. It is the belief of most syphilographers that arsphenamine is superior to neoarsphenamine but the work of Shamberg indicates that the latter may be equally effective if given in adequate dosage (about twice the amount of arsphenamine). Our plan therefore is to give arsphenamine, three to four intravenous injections, or neoarsphenamine, six to ten intravenous injections, at weekly intervals; at the same time bismuth is given, twenty doses intramuscularly of an aqueous solution of a soluble bismuth salt triweekly or ten doses of an insoluble bismuth salt in oil once a week. This constitutes a course of treatment and takes seven to ten weeks' time after which a rest period of two to four weeks is allowed and then the course is repeated. Six such courses should be the minimal amount of treatment regardless of the serological reactions.

A large number of syphilographers are convinced that interruptions in the treatment (rest periods) are disadvantageous. They advocate the continuous treatment which should be given as follows: Three to four intravenous injections of arsphenamine or six to ten intravenous injections of neoarsphenamine at weekly intervals followed at once by twenty intramuscular injections of an aqueous solution of a bismuth salt or ten intramuscular injections of an insoluble bismuth salt in oil. This is to be kept up for at least one year regardless of the serology.

TREATMENT OF LATENT AND LATE SYPHILIS

The latent syphilitic patient is always a candidate for manifestations of late syphilis. During the latent stage those pathologic processes are going on which lead to structural visceral damage, some perhaps already irretrievably accomplished. In these patients treatment must be carefully adjusted to the individual and the organs affected. Never must treatment be be-

gun with large doses of highly spirocheticidal arsphenamines but always with iodides and mildly spirocheticidal and highly reconstructive mercury.

The so-called latent syphilitic may have the disease in an entirely undiscoverable form. The principles governing the treatment of late syphilis must therefore be used in practically all latent cases. Considerations must take in age, marital status, economic status, organs affected, state of the cardiovascular-renal system, etc. The elderly man with a grown family, more or less beyond economic worries, as a rule needs no intensive treatment given with a view to eradicating his infection. The chances in his case are against a complete cure and he requires treatment only if he presents symptoms and such treatment may be medical rather than specific. The unmarried young man, a latent or a late syphilitic, should also be treated in the beginning with very mild measures to be followed by more and more intensive measures until he is taking the same intensive treatment recommended for the early case and usually over a much longer period of time. The asymptomatic Wassermann-positive elderly individual may not require treatment at all, where the younger individual of similar status would require mild treatment to begin with to be followed up with intensive treatment in an endeavor to cure him. The young or the old with aortitis require treatment both medical and specific if aneurysm is to be warded off and the early tabetic and paretic may be benefited, if not saved, by the judicious use of antiluetic medication We mention only a few of the human situations which modify or direct our treatment methods.

What is the basic rule for the treatment of these latent and late cases? *Start with mild treatment.* A few weeks of the old fashioned mixed treatment by mouth may suffice to start the treatment followed by courses of mercury injections or mercury rubs and potassium iodide by mouth in dosage sufficient for the particular case. Under varying conditions it may be necessary then to follow with the intensive treatment previously outlined, using one of the arsphenamines and mercury and that followed by similar courses of the arsphenamines and bismuth. On the other hand, only mild treatment with potassium iodide and mercury may be necessary but such a patient is usually kept on lifelong observation and mild intermittent treatment.

TREATMENT OF NEUROSYPHILIS

The treatment of neurosyphilis will be taken up in detail by the next speaker. We only wish to state here that similar principles of treatment apply, especially the rule that treatment should be started cautiously and that one should work up gradually to intensive treatment. Fever therapy is the outstanding contribution of the last few years to this field. We are thoroughly in accord with the views of O'Leary and others that in carefully selected cases it will prove to be the treatment of choice. Furthermore, recent work has indicated that it may be of great value, not only in the treatment of asymptomatic neurosyphilis but also in latent, late and congenital syphilis.

CAUSES OF FAILURE OF TREATMENT

Not all the blame for failure of treatment can be laid at the door of the physician. Too often the patient is at fault. Delay in seeking advice, self-medication, suspicion and lack of confidence all play a part in delaying treatment and hence diminishing the chance of cure. In the late cases, failure of the patient to realize the seriousness of the disease and his tendency to think that one or two negative serological tests indicate a cure, all help the disease to take its annual toll of disability and death. In recent years the economic factor has been increasingly more prominent and we fear that in the coming years the incidence of cardiovascular and central nervous system syphilis will be alarmingly increased.

Physicians, however, are frequently at fault in their management of these patients. The psychology of the syphilitic who must be treated for months and years is almost a closed book to many of us. It is extremely difficult to steer a middle course in our advice to patients; on the one hand, some of us will tend to minimize the seriousness of the infection, while, on the other hand, some may paint such a gloomy picture of the outlook that patients may be driven to despair and even to suicide. Each patient must be studied from the psychological standpoint. Prognosis should be tempered with sympathy and understanding; and advice while necessarily accurate and informative should be given so that mental shock is avoided or minimized. The first few interviews with a patient who has just learned of his infection may by tact, sympathy and understanding lead to willing and effectual cooperation. By abruptness, tactlessness and lack of sympathy the physician may create an attitude of sullen defiance and noncooperation.

Failure to use the dark field in the earliest stages of the chancre and failure to do serial dark field examinations is a frequent fault too often brought to our attention. Undue empha-

sis placed on negative serology frequently leads the patient to a false sense of security and to discontinuance of treatment.

Many of us give too little treatment in the invasive period of the disease. Engman's advice to "hit syphilis with a sledge hammer and not with a tack hammer" should be our guiding principle in the treatment of the invasive period of syphilis. On the other hand, by beginning with intensive treatment in the latent and late periods many of us meet with discomfiture and even disaster.

Failure to recognize the earlier symptoms of heavy metal intolerance leads to delayed reactions which, if they do not cause death, lead to fear of treatment both by the patient and the physician. Even the nitritoid reaction may be warded off or minimized by carefully watching the patient during the progress of an intravenous injection.

All antisyphilitic treatment is attended by risk but the risk is justified by the seriousness of the disease. The treatment morbidity and mortality rate is, after all, very low; lower perhaps than with many other medical or surgical procedures and we are therefore fully justified in employing our most effective weapons in the attack on this disease.

SUMMARY

Widespread dissemination of Spirocheta pallida occurs long before the chancre appears, therefore primary syphilis must be treated with the knowledge that these organisms are in many if not all tissues of the body.

Whatever defense the body can produce against the Spirocheta pallida takes time to develop. With this knowledge in mind, seronegative primary syphilis must be treated intensively and with drugs of highest spirocheticidal activity in an endeavor to eradicate the infection with the utmost possible speed.

The body defense mechanism is probably completely elaborated during the invasive (secondary) period of syphilis, but foci of spirochetes have been deposited in many if not all tissues of the body. It is essential to treat this phase of syphilis by highly spirocheticidal drugs, in the highest possible concentration consistent with safety and over a very long period of time regardless of negative serology.

The periods of latent and late syphilis are indications that an equilibrium has been established between the spirochete and the host by the setting up of a relatively effective defense mechanism. In this period, the treatment must be begun cautiously and with drugs less spirocheticidal and more reconstructive. If necessary, subintensive and intensive treatment may be instituted later, according to the indications of the particular case.

The importance of early diagnosis of the chancre by means of the dark field cannot be overstressed. Every genital ulcer must be regarded as primary syphilis until the contrary has been proved, and the possibility that extragenital ulcers may be syphilitic must always be kept in mind. Early diagnosis has an extremely important bearing on treatment as the earlier treatment is begun the better the chance of a cure.

Failure in the treatment of syphilis can frequently be the fault of the patient. Delay in seeking advice, self-medication, suspicion and lack of confidence in the physician, may delay treatment and diminish the chance of a cure.

Physicians may be at fault by failure to appreciate the abnormal psychology of a syphilitic patient and by injudicious handling cause lack of confidence. Insufficient or overtreatment, failure to detect the earliest symptoms of drug intolerance, lack of sympathy and understanding are frequent causes of failure in treatment.

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CEPHALOTETANUS WITH A FACIAL PARALYSIS

CASE REPORT AND RESUME OF METHODS OF TREATMENT

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Not so very long ago, on the fourth day of July, 1933, to be exact, a farmer and his wife brought their three-year-old son into the hospital for diagnosis and treatment. The story of the lad's illness, in a contracted form, is as follows:

REPORT OF CASE

Nine days before the onset of his illness, while playing with the younger members of his family, the boy was struck over the right eye with a rock, producing a shallow laceration. His mother, attracted to the scene by the usual infantile clamor, carried out the customary first aid with iodine and bandage and the event was promptly forgotten by all parties. However, on the ninth day after the injury and two days before admission to the hospital his mother noticed that while he was eating with apparent relish the right side of his face did not move and that there was some difficulty in chewing and swallowing. No complaint was made at that time of pain, of stiffness or of any discomfort. From this beginning there was a rapid development of the clinical picture. During that first day of symptoms the weakness of the right face developed into a complete facial paralysis, being accompanied by irritability, restless-

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ness and an elevation in temperature. There were no spasms or convulsions, although his mother, on questioning, seems to think there was some stiffness of the jaws. The family doctor was called on the second day of symptoms and found, in addition to the above, a spasm of the masseters so tight that he was forced to use chloroform when he attempted to examine the throat. Because of the high temperature (circa 103) the pronounced facial paralysis, the trismus and the systemic reaction, he made a presumptive diagnosis of a retropharyngeal abscess and sent the boy into the hospital. At that time there were no generalized spasms or convulsions, no opisthotonus, no meningeal symptoms; the picture was dominated by the facial paralysis and the trismus.

The state of affairs on admission was confusing. The boy was obviously acutely ill, lying in bed in a semistuporous condition, responding to verbal stimuli only by crying and whimpering. His temperature was at 105 degrees, his pulse rate at 142 and his white count showing an increase to 17,000 with an 89 per cent polymorphonuclear count. There was a scar over the right eyebrow locating the site of the original injury. There was a complete paralysis of the right facial nerve as shown by the smooth cheek, the inability to close the right eye completely, and by the pulling of the mouth over to the left when he cried. There was a marked trismus of both masseters preventing the opening of the mouth even with force. The pupils of his eyes reacted normally to light; there was a suggestion of lateral nystagmus in the left. There was moderate stiffness of the neck. The heart and lungs were normal. The abdomen, except for reflexes and later spasm of the recti, was normal. All reflexes on the right side were normal; on the left the Kernig and Babinski were suggestively positive. The abdominals were questionably present. On first being admitted he remained perfectly limp when being moved or examined, but within the hour after admission he went into an increasingly marked opisthotonus when stimulated. This latter phenomenon progressed so rapidly that within two hours after admission he was thrown into violent opisthotonus and general muscular rigidity when even the ceiling light was turned on.

Spinal puncture produced a clear absolutely normal fluid under definitely increased pressure.

After the examination and before the spasms and opisthotonus had become the major symptoms, the diagnosis lay between a meningitis, a poliomyelitis, a brain abscess, and tetanus; but with the advent of the typical tetanic symptoms there was no question as to the true situation. However, before tetanic serum could be opened and administered, the boy had a sudden respiratory paralysis and died.

Autopsy was limited to the brain, which showed a markedly hyperemic condition with congestion of all the vessels over the cortex. Sections taken through the cortex, medulla and cerebellum showed naught but extreme congestion and engorgement of all vessels. No other pathological finding, except for the expected edema, was made.

On reviewing this case in retrospect it is easy enough to see the typical signs and symptoms which should have led at once to the proper diagnosis, but at the bedside it was a far different situation. The fact that the case showed a facial paralysis as the predominating symptom was undoubtedly the cause for the delay in antitetanic treatment, although the failure to recognize the true state of affairs is not entirely inexcusable. In a case reported by Grant the boy "exhibited a left-sided facial paralysis. He was unable to open his mouth widely, but the significance of this was not realized at the time, as this is a fairly common finding amongst children, especially in the presence of dental or tonsillar sepsis." Slimon reports a case in which the initial symptom was a slight stiffness of the jaws appearing on the fifth day after receiving three facial wounds. Because a numbness and paralysis of the facial nerve developed soon after this initial symptom treatment was delayed two days, or until a typical *risus sardonicus* set in. While there is no doubt that the possibility of tetanus should have been considered, and in the two cases mentioned above undoubtedly was considered, the paralysis is in itself a complication rare enough to send the diagnostic mental processes along other channels.

While cephalotetanus, the "Kopf-tetanus" of the German writers, is not an unusual condition following dirty wounds of the head, the cases showing a complicating facial paralysis are comparatively rare. Since Rose's monograph in 1872 few cases have been reported. In the Index of the Surgeon-General are twenty-seven references relating to cephalotetanus, but three of them are specifically complicated by this phenomenon. Slimon reports a case and mentions three more in Allbutt and Rolleston. Grant's case has been mentioned above. The case history given above adds one more to the list and one hopes that it will serve to draw the attention of the profession to the possibilities of the condition so that in the future an early and correct diagnosis may be made thus greatly enhancing the probabilities of successful therapy.

The paralysis is of the Bell's palsy type; that is, the complete external variety, showing a paresis of those muscles controlling the forehead, eyelid, cheek and mouth. At the same time there is usually a trismus of the masseters preventing complete or partial opening of the jaws. In the few cases reported as having recovered the paralysis slowly but completely cleared up.

It was this rather rare early picture of tetanus, with the utter helplessness in treating it, that stimulated the perusal of the current literature to discover what was being done regarding successful therapy. And after reading what is being done the question is still moot as to whether we would have been able to save the lad. While tetanus due to the routine use of prophylactic antitetanic serum is not a common disease in the modern hospital, the mortality

among the relatively few cases is ghastly high. Among the 13,622 admissions to the Trinity Lutheran Hospital during the last five years, there have been but three due to tetanus; of these three two died, one after receiving the prophylactic dose of 1500 units of serum immediately after injury.

To arrive at a legitimate and rational treatment of a disease it is first necessary to know, through experimentation and clinical observation, the course and spread of the disease throughout the body. This holds especially true in the case of tetanus. Shannon gives what is perhaps the clearest and sanest picture I have found in recent literature. I quote from his abstracted article:

> In tetanus the greatest portion of the toxins produced is found in the blood and finds its way to the central nervous system by way of the motor tracts, either by way of the axis cylinders or the lymphatics of the nerves. At the present time it has been shown, and the theory prevails, that there might be circulating in the blood of a patient infected with tetanus many times the fatal dose, if not many thousand times the fatal dose, with no fatal issue until the fatal dose, or amount of toxin has reached the nerves and ganglia of the central nervous system. The real conflict lies in neutralizing the toxin after it has left the blood through the capillaries, while it is in migration through the fine interstices of the connective tissue through which it must penetrate before reaching the nerves. There is an interval between the time when the blood becomes supersaturated with toxin and the time when fatal issue may occur.
>
> The interval between the time we have our first suggestion of tetanus and the time necessary to absorb a fatal dose is our opportunity for heroic work.

This, I think, presents a crystal clear picture of our problem. To get to work at the first intimation of tetanus and to load the blood stream with a substance which will neutralize the toxins before they have a chance to get to the nervous system is the goal. Whether we are able to neutralize the toxins already in situ in the neural structures is open to debate and will be mentioned later.

There is a tendency in recent literature to discuss at great length the various methods for systemic treatment while overlooking the treatment due the site of injury from which all the devastating toxins are being released. Even as far back as 1877, and before B. tetanus had been discovered as the causative agent, Bauer made the statement that "Amputation and excision must appear the most certain means to eradicate the evil by the roots; these procedures have often been put in practice, and were especially praised by Larrey, and even at the present time the discussion in regard to them has not ceased." This "discussion in regard to them" is still being carried on but with the modification, since the use of serum therapy has come to us, as to whether one should excise the wound or inject the antitetanic serum around it and in this manner block off the toxin traffic. Both methods are excellent and both have their indications; one would hesitate in this day to amputate a leg when the injection of serum would probably serve the purpose and leave the whole body after recovery, while there should be no delay whatever in excising a small laceration from a vascular area where serum injection might be difficult of control.

There is no necessity to speak of a neutralizing agent when the antitetanic serum has been so universally used and approved. However, the modes of administration may well be considered. The article by Shannon is again referred to. The subcutaneous injection is at once condemned because of the very evident lag in absorption at a time when the rapid utilization of the injected drug is a prime necessity. The intrathecal injection is useful in getting the serum in contact with the nervous system but is objected to in that by this means only a relatively small amount of toxin is open to neutralization; that as the deadly influence of the toxin is upon the centers of the central nervous system, and as absorption from the spinal fluid is relatively slow, reliance entirely upon this mode of treatment is condemned. It is on the vascular system with its rapid dissemination and absorption that we are to depend for our best and most effective work, and maximally effective only when the blood stream is kept supersaturated with the antitetanic serum.

With this thought in mind, the report of Silverthorne and Hart is most interesting. While other reports show the use of large amounts of serum* these two men are the first I have found to give massive doses supersaturating the blood stream of their patients with the antitetanus serum. In their first case they give a total of 575,000 units in the usual manner, using the intrathecal, intramuscular and intravenous methods of administration. There was no visible improvement, however, until they supersaturated the blood stream by giving the remainder of the total 705,000 units as a *continuous intravenous injection* at the rate of circa 20,000 units per half hour, using a 10 per cent solution of glucose in saline as a vehicle. The patient recovered. The second case, one of the deadly cephalotetanus, received 2,867,500 units, given as a continuous intravenous injection from the start, and recovered. This second

*Ireland ..... 130,000 units
Freedlander.. 755,000 units
Van der Bagert .....587,500 units
Woolf ..... 172,000 units
Caffrey ..... 112,500 units
Young ..... 220,000 units
Bruce ..... 249,000 units

case is interesting in that except for the usual sedatives to control as much as possible the convulsions, no other treatment was used.

Here is a method, then, which meets the major requirements in the treatment of tetanus and has produced in the only two cases reported entirely satisfactory results. From the theoretical standpoint it appears to me as the best yet to appear, but with further use and more reports the ultimate worth will be proved or disproved.

While this method seems to be the most rational of all, others are being used with varying degrees of success. To Dufour of Paris is credited the extensive use of chloroform in the treatment of tetanus. Numerous French authors have reported cases treated with this method all, of course, claiming excellent results. They assign two actions to the chloroform; first, that it relaxes and controls the muscular spasms and convulsions, allowing intrathecal injections, and second, through its action on the lipoids of the nerve cells it either drives the toxin out of the cell into the body fluids where it is neutralized, or it acts on the toxin in such a way as to make it neutralizable within the cell itself. This mode of treatment, the combination of the chloroform with the antitoxin, has been used extensively on the Continent, and to a more or less degree in this country with comparatively good results, although not good enough by far to allow us to rest on our oars in the search for a really perfect treatment. As I see it, the great fault here as with all other treatments except the first mentioned above, is that while the antitoxin is used extensively and in large amounts it is not used massively, saturating the blood stream. The results with the intensive use of the serum seem to show that this is not as important as the massive use.

As adjuncts to the antitoxin and for the purpose of controlling the spasms and convulsions, many drugs have been used. Chloral hydrate, morphia, avertin, sodium amytal . . . many have been used and have their own staunch supporters. There is little to choose between them so long as the drug used is controlling the convulsions with the production of no adverse symptoms. Chloral hydrate, avertin and sodium amytal appear to be the pick of the lot.

H. H. Brown, in the *Clinical Journal* for August 24, 1932, reports a new and novel method of treatment with the report of one case. Arguing that the antitoxin should be placed as near the nervous system as possible in order to achieve immediate results, he carried this theory into actual practice by trephining his patient and injecting the antitoxin into the right hemisphere. The patient's recovery was "miraculous" and complete. It should be noted, however, that the Dufour method had been used previous to the trephining, the latter being attempted because no visible improvement had been noted with the routine methods. There is no doubt that this is an interesting and enlightening case, but I shudder to think of what would happen if the Resident House Officer in the hospital at Lost Hope Hollow should adopt this method of treatment.

There are two methods of treatment using drugs other than the serum which must be mentioned. Since the work of Blake in 1906 many men have been using magnesium sulphate with comparatively good results. While it does not affect a cure, nor do its adherents claim this, it does succeed in preventing exhaustion, permitting nourishment and keeping the patient alive and comfortable until the antitoxin can produce its cure. In doing these things it is a valuable addition to the armamentarium of those treating tetanus. As an adjunct to the serum magnesium sulphate may be given in any one of the usual four ways. The least dangerous as far as respiratory arrest is concerned is subcutaneously, where it is given, at the rate of 1 to 2 c.c. of a 25 per cent solution per 20 pounds of the patient's weight, every four or six hours. In severe spasms one may use the intramuscular route, giving 2 c.c. of a 25 per cent solution per 20 pounds weight, or the intervenous, where a 6 per cent solution is used, giving it at the rate of 2 to 3 c.c. a minute until relaxation occurs. The former method is dangerous because of the threat of respiratory failure, while its effect comes in about half an hour, and lasts for two or three hours; the latter is the least dangerous, the effect comes on rapidly, but is fleeting. The drug may also be given intraspinally, using 1 c.c. of a 25 per cent solution per 20 pounds weight for the first injection, and 0.8 c.c. for the second if necessary. In children 0.5 c.c. per 20 pounds are used.

Noticing that carbolic acid destroys the tetanic serum in vitro, Suvansa decided to use it in vivo. By testing different strengths of solution as to their effect on white corpuscles he found that in a dilution of 1:400 he had the strongest possible solution which produced no changes in the cells. By injecting toxin and the 1:400 carbolic into guinea pigs he found that the toxin was neutralized and no tetanus resulted, although control pigs injected with the toxin alone developed tetanus. His first case, seen twelve days after injury, was given 20 c.c. of the 1:400 strength solution intrathecally and recovered completely, although complicated by a mild acute nephritis. While it was felt that the nephritis was not specifically due to the drug, no more cases were treated in a like manner be-

cause of the fear of complications such as meningitis with adhesions, an impairment of brain function, or possibly a nerve root injury. However, in 1929, five years after the first case, a second case was given 15 c.c. intrathecally on the first hospital day, and 15 c.c. again on the second day, with complete recovery free from any complication. Since that time fourteen cases all told have been treated with the carbolic acid therapy, ten of which recovered completely. The four deaths were due to the fact that three were too far gone at the time of admission, while the fourth died of uremia due to infected kidneys. His conclusions are that this is a mode of therapy deserving consideration in the routine treatment of tetanus. It is advantageous in that the action is certain in comparison to serum, that one injection suffices, and the cost is almost nil. The possibility of a nephritis complicating the recovery is the sole apparent disadvantage. He gives as dosages 30 to 40 c.c. of the 1:400 solution for adults, and 12 to 20 c.c. for children, depending on the severity of the case. Sequelae which should be watched for are rigidity of the back muscles produced by the irritation of the motor nerves, a rash and possibly an acute nephritis.

SUMMARY

A case is reported of cephalotetanus complicated by an initial facial paralysis. The rarity of the condition is noted, with reference to former reported cases. The various methods for treating tetanus are given, the one giving theoretically the most promise being that of supersaturating the blood with the antitetanic serum by a continuous intravenous administration. Others mentioned are the intensive use of the serum, the use of magnesium sulphate, and the use of carbolic acid in a dilution of 1:400 as suggested by Suvansa.

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DISCUSSION

Dr. Damon Walthall, Kansas City: It is rather interesting that often the otolaryngologist is called first because of the complaint of a sore or stiff throat in these cases of tetanus. I mention this to emphasize to these physicians the importance of their being on guard to diagnose early the tetanus case.

The current pediatrics textbook under the heading of "Tetanus" mentions no cases except those occurring in the new born due to an infection about the umbilical cord and at the present time this never occurs.

A great deal of information can be obtained as to prognosis in these cases if a careful history is taken to determine the length of time from the accident until the first symptoms. The earlier the onset or if the neurological symptoms occur before one week has elapsed the case is very fulminating and the prognosis is very bad. The longer time that elapses over this first week the better the prognosis.

The treatment I wish to emphasize Dr. Gray has also stressed, and that is the use of very massive doses of serum. If it is not plausible to get the serum direct into a vein by practically a continuous method then 200,000 to 400,000 units of antitetanic serum should be given deep into the muscle within the first twelve to twenty-four hours.

In handling cases for prophylaxis one should bear in mind the possibility of serum reaction in cases that previously had horse serum in the form of other antiserum or even in the patients who had toxin antitoxin. To limit the serum reaction these cases who have previously had serum should be given either bovine or goat antitetanus serum for prophylaxis.

The question of surgically removing the site of the initial lesion is open to discussion. Some surgeons prefer not to excise the original wound while others believe that it should be resected or widely opened. We have noticed in cases where further operations were necessary as skin grafting or resetting of a bone the patient often develops a mild tetanus where they have had a prophylactic dose of tetanus antitoxin at the time of injury. Therefore, our reaction would be to clean up the infected part thoroughly even to the point of excising the puncture wound at the onset rather than to risk the possibility of it harboring infection which later might become active.

ENDOMETRIAL HYPERPLASIA

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INTRODUCTION

The great importance of endometrial hyperplasia was first emphasized by Cullen,[1] who described this distinct histological and clinical entity in 1900. The term has frequently been wrongly used, and under its nomenclature have been included many other endometrial conditions. The term "polypoid endometritis" has been stressed in older texts to include a definite overgrowth of endometrium. However, an actual inflammation does not exist and now we know that curettings frequently alluded to as "filling a whole specimen bottle" were actually true endometrial hyperplasia. The most important aspect of the whole problem lies in distinguishing between true endometrial hyperplasia and carcinoma of the corpus and is perhaps the most important part of this original work. Cullen calls attention to the fact that at times even in very young girls the amount of tissue obtained on curettage may be so enormous that it at once suggests carcinoma. Many uteri have been removed under an erroneous diagnosis of cancer.

American gynecologists were slow to recognize this important endometrial lesion but in 1908, when Hitsmann and Adler described the four phases of the normal endometrial cycle, a new study of endometrial problems began. In 1915, R. Meyer and Schröder contributed very important etiological factors and in 1924 the article of Novak and Martzloff[2] was decisive data for the acceptance of this lesion as a true entity.

Endometrial hyperplasia is so often found in patients clinically classed as "functional uterine bleeding" that it constitutes fully 98 per cent of all cases with this symptom.

PATHOLOGY

In the gross uterus we find no change in depth of the cavity, but the endometrium is piled up in places suggesting polypoid growth. This thickness of endometrium stops definitely at the internal os. There is no difference between the histological picture whether the endometrium is smooth or polypoid. In some cases the endometrium is no thicker than the normal interval phase. This is readily understood when the pathological physiology is explained.

The microscopic structure is very characteristic. There is no increase in the polymorphonuclear neutrophils or lymphocytes, thus proving the absence of true inflammation.

The normal endometrium exhibits three layers; the upper two layers being the compacta and the spongiosa, and the innermost layer termed the basalis—the basalis having been left normally for endometrial regeneration. The stroma in endometrial hyperplasia greatly stimulates this basal layer. Stroma is dense; several mitotic figures are discernible. The glands are most frequently enlarged, but not necessarily, and at once the punched-out appearance is suggestive of a "swiss cheese" pattern. The lining cells of the glands are nonsecretory as in large glands of normal premenstrual mucosa.

PATHOLOGICAL PHYSIOLOGY

In recent years and even in recent months much work has been done on the endocrine glands. In no phase of medicine has the study been so productive recently as that of gynecological endocrinology. To understand the real nature of normal menstruation one must know the hormone action, stimulative and inhibitory let us say, on the normal endometrium. Historically it will suffice here to mention the names of Edgar Allen,[3] Corner, Smith and Engle, and Aschheim and Zondek as the leaders in our knowledge during the last few years. Let us review the known facts of female endocrinology.

The follicle hormone, i. e., theelin, folliculin, estrin, or progynon is the real stimulative hormone of the endometrium. As the follicle ripens the endometrium grows. It is being prepared, so to speak, by the action of this hormone. At the so-called interval stage of the endometrium, ovulation occurs and (12th to 16th day after menstruation) follicle hemorrhage results, proliferation next, then a mature corpus luteum. Folliculin is still the predominating hormone in the early stages of corpus luteum. When the full grown corpus luteum is formed the endometrium is in the premenstrual stage, the glands are long and tortuous, the endometrium is at its physiologically thickest stage. It is prepared now for the ovum which is in the tube waiting to be fertilized. Hence the corpus luteum secretion is called "progestin." If fertilization and implantation of the ovum does not occur the theory is that with the withdrawn stimulative effect of folliculin the endometrium is crumbled and menstruation occurs. However, menstruation is said to occur without ovulation and corpus luteum formation is not considered essential, but the withdrawal of folliculin is considered the cause of menstruation. Therefore, with continued stimulation

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with folliculin the endometrium would remain thickened.

The anterior pituitary contains a gonadal regulating hormone or hormones. Some investigators divide the secretion into two hormones, so-called prolan A, or follicle ripening hormone, and prolan B, or luteinizing hormone. The anterior pituitary is said to exert influence upon the graafian follicle causing this follicle to ripen and therefore producing folliculin which in turn stimulates the endometrium; and also that the anterior pituitary secretion by its prolan B factor causes the follicle to rupture and luteinization to occur, producing "progestin."

It is generally accepted today that endometrial hyperplasia is caused by overstimulation with folliculin and therefore absence of corpus luteum. The real cause of this ovarian dysfunction might be an unbalance with other glands of internal secretion, as exemplified frequently in cases associated with hypothyroidism.

The exact mechanism of the bleeding is not understood for it is not like that of normal menstruation. It is supposed by some to be a diapedesis from underlying vessels. Novak speaks of a "bleeding factor" in the anterior pituitary hormone exerting its influence directly upon the uterus. One should conceive the idea that when one gland of internal secretion is out of balance the result may be hyposecretion or hypersecretion of another.

Based upon the above well established and accepted theories and also clinically (Schröder) we would think that by increasing the corpus luteum secretion we could in turn inhibit the folliculin secretion thus affecting the endometrium, i. e., decreasing its hyperplastic growth.

Also, should we increase the amount of anterior pituitary luteinizing hormone (so-called prolan B) we could accomplish the same by causing corpora lutei to form. This will be brought out practically when we consider treatment of endometrial hyperplasia.

CLINICAL PICTURE

That endometrial hyperplasia is not a disease of the endometrium per se is proved by the following: (a) It occurs most usually during the reproductive period. (b) It is checked by destroying the ovaries. (c) There is always a tendency to recur after the endometrium is removed, i. e., curettage.

The chief symptom of endometrial hyperplasia is uterine bleeding. Of course, in the differential diagnosis, carcinoma, myomata, conditions associated with pregnancy and polypi must be considered. Very rare conditions of other cause must be considered as general medical diseases but are usually ruled out before curettage is done.

Uterine bleeding is most frequently of the hypermenorrhea or menorrhagic class. Occasionally in very severe cases metrorrhagia and real disturbance of the cycle occurs and one period may lap into the next. Associated secondary anemia, depending on severity, is of course in order. Some severe cases have necessitated immediate transfusion.

The striking feature about the condition is the absence of direct association of the severity of hemorrhage and the amount of hyperplasia, occasionally small amounts of curettings being obtained from a patient who has had the most severe and persistent bleeding; also cases which show only a few days' increase over a normal period exhibiting a well developed glandular type of hyperplasia. This is well shown in one of our case reports.

TREATMENT

In the treatment of endometrial hyperplasia one should first consider its severity. In some cases, particularly in young women, there is a tendency for the endocrine disturbance to become gradually adjusted and the hyperplasia spontaneously disappear. This is sometimes noted after one or more curettings. However, if the symptoms are so aggravated that they threaten blood depletion and severe anemia one must consider several factors and modes of correction.

In middle life we must consider either destruction of the ovaries or removal of the uterus, providing the symptoms are imperative. If, added to this, the social condition of the patient necessitates her immediate services, then more than ever radical treatment is necessary. Of course some other lesion in the pelvis necessitating operation would decide our course. Radium and roentgen ray therapy have been used successfully in many clinics recently. Three modes of use are popular. First, roentgen ray, or radium in small doses directly depressing the ovary temporarily with the idea of decreasing folliculin hormone stimulation of the endometrium. Second, direct radiation of the anterior pituitary with the idea of increasing its luteinizing factor and, third, the radical destruction of the ovaries by radiation (of course the same as castration).

However, the majority of our cases are young women in whom we wish to correct the hyperplasia and still retain the uterus and ovaries. We hesitate to radiate even with small doses for fear we might find a patient unduly sensitive to radiation and cause artificial menopause and permanent sterility. It is this class of cases, hav-

ing a normal pelvis as far as bimanual examination can determine, which is one of the greatest problems in gynecologic practice today. In these cases we are resorting to organotherapy. As stated above, the recognized cause of endometrial hyperplasia is overstimulation with folliculin or theelin and absence of progestin, that is, corpus luteum secretion.

As yet there has never been a potent extract of corpus luteum on the market. Corner and Novak state that the biological effects from extracts long in use are negligible. Experimental study will undoubtedly find a commercial supply in the near future. At present we are trying to increase the corpus luteum extract by causing luteinization of the follicle. The urine of pregnant women, particularly in the first half of pregnancy, is abundant with the prolan B factor, or luteinizing hormone. Standardization has been effected and a rat unit dose accepted.

Two hundred rat units intramuscularly each day for 10 to 12 days will provide improvement in most cases. Many reports from recent clinics have substantiated its worth. This is not a curative agent but intends to correct the fault until endocrine balance is restored.

Thyroid extract in well regulated cases, checked by frequent basal metabolic rate determinations, is reported to aid materially and is used in conjunction with anterior pituitary injections. Novak suggests that it be used even though the rate is normal.

CASE REPORTS

Mrs. Z. M., aged 25, gravida 3. Miscarriage at two months, December 10, 1932, and flowing at intervals since then. Normal menstrual history; onset at 14 years every 28/5 days. Two normal pregnancies at full term. Second pregnancy difficult; delivery with forceps accompanied by laceration. Since last pregnancy had been flowing excessively at intervals and passing clots. General physical examination negative. Pelvic examination: Outlet relaxed, fair support. Cervix eroded, stellate laceration. Uterus small and moveable. Third degree retroversion. Left ovary prolapsed into culdesac, slightly enlarged. January 4, dilatation and curettage. Moderate amount of curettings. Microscopic diagnosis: Endometrial hyperplasia. January 20, patient began bleeding as before. Physical findings as above. March 24, had been bleeding at intervals since dilatation and curettage. White blood count 5,200, red blood count, 5,200,000; Hbg. 88 per cent. Laporotomy performed because of third degree retroversion; shortening of round ligaments, dilatation and curettage. Left ovary studded with numerous follicle cysts. Microscopic diagnosis of curettings same as before.

April 10, began flowing again, passing clots; flowed for two weeks. Began flowing again April 27 to May 10. Pelvic examination: Uterus well forward and adnexa negative. Basal metabolic rate 0 per cent. At this time patient received antuitrin S, 200 rat unit doses daily and ¼ gr. thyroid twice daily for 12 days, then antuitrin three times a week. Her June 2 period was of six days' duration with decreased amount of flow. Patient has received antuitrin just before every period for four doses of 200 rat units since that time. Periods have been regular every 28/6 days with moderate flow.

Mrs. F. H., aged 42, gravida 5. Began severe menorrhagia May 7, 1933, which had continued for seven days before she was seen. Patient thought she had had a miscarriage but passed no fetus at that time; Hbg. 60 per cent, red blood count 3,200,000. Blood transfusion upon entering hospital.

General physical examination negative. Pelvic examination: Entroitus relaxed, fair support. Cervix small, bilateral laceration. Uterus small, slight retrocession. Adnexa negative. Dilatation and curettage. Typical endometrial hyperplasia present.

Antuitrin S, 200 rat units per day for 12 days. No period the next month then had normal period for four days. Has had very small amount of flow at monthly intervals since. No further medication used. Upon last report one month ago has had no further trouble.

Mrs. A. C., aged 33, gravida 6. Present complaint menorrhagia two years, metrorrhagia six months. Menstrual history: Onset 12 years, always irregular every 24 to 33 days, duration five days, until present illness. Two children, 12 and 10 years; no puerperal complication. Four miscarriages, one seven years ago followed by fever and chills; flowing 7 to 10 days

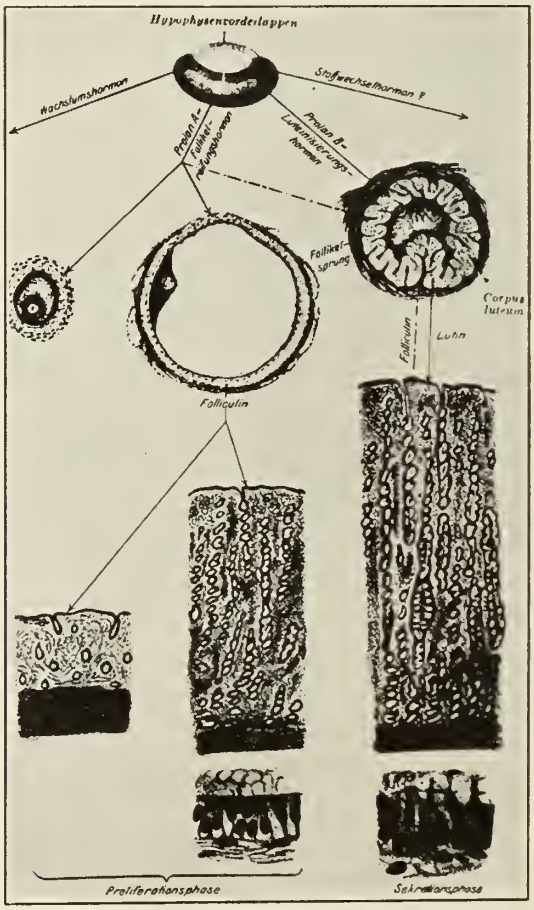

Fig. 1. Anterior pituitary gland and genital function in the female. (After Zondek.)

profuse. Complaining of some pain in both lower quadrants. Previous laparotomy with removal of both tubes, right ovary and appendix in 1926.

General examination essentially negative. Pelvic examination: Outlet relaxed, fair support. Cervix negative. Uterus slightly enlarged, only partially movable. Both adnexa very tender and indefinitely outlined mass in the left. May 16, supravaginal hysterectomy. Left ovary exhibited many retention follicular cysts but was preserved. This case was submitted to hysterectomy because of associated pelvic lesions. The uterus was only slightly enlarged. A cut section of the uterus showed polypoid growth of endometrial tissue.

Mrs. F. H., aged 27, gravida 1. Complained of scanty menstruation for seven years, passing of flakes of flesh-like material at menstruation for seven years. Normal pregnancy with delivery four years ago accompanied by laceration of perineum. Dilatation and curettage showed large amount of curettings. Section showed endometrial hyperplasia of glandular type. This patient was not given any treatment. It is a case illustrating where endometrial hyperplasia was present without marked bleeding.

Mrs. B. M. C., aged 39. Complaining of menorrhagic type of vaginal bleeding, two years' duration; periods lasting three weeks with considerable clots. Menstrual onset at 14, every three months until married at the age at 21, then every 26/5 days until present illness. One pregnancy seven years ago, no complications. On entrance to hospital patient felt very weak from loss of blood; Hbg. 50 per cent, red blood cells 2,600,000. Dilatation and curettage on May 19. Approximately one ounce of curettings obtained showing typical endometrial hyperplasia.

Patient received 12 injections, 200 rat units each, as above and this treatment has been carried out just five days previous to expected period each month. Periods now lasting eight days, moderate amount of flow.

Mrs. E. R., aged 22. Complains of excessive menorrhagia and oligomenorrhea for one year. Anemia and weakness four or five months. Menstrual history: Onset at 14 years, irregular every 2 to 5 weeks, lasting 5 to 8 days. Flowing two to three weeks with each period; very irregular onset of periods. General physical examination essentially negative. Pelvic examination: Outlet nulliparous, cervix normal, small erosion. Uterus forward, good position, freely moveable, both adnexa negative.

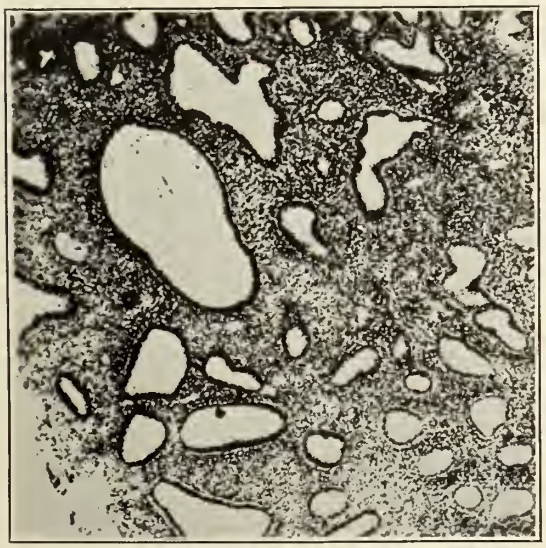

Fig. 2. Typical microscopic picture of endometrial hyperplasia. (After Novak and Martzloff.)

August 18, dilatation and curettage exhibited large amount of curettings showing endometrial hyperplasia. Basal metabolic rate on August 25, minus 20 and minus 21. Patient given thyroid ½ gr. twice daily and antuitrin as above. Last period was of five days' duration. Normal amount of bleeding.

Mrs. N. M., aged 58, gravida 1, para 1. Menstrual onset at 14 years, regular 28/5 days. Normal onset of menopause at 43 years of age; no bleeding since 45 years of age except present illness.

Vaginal bleeding began 4 weeks ago and has continued to present time. Blood pressure 200/130, albumin two plus, Hbg. 65 per cent, red blood cells 3,200,000. Pelvic examination revealed small uterus and normal adenexa. Uterus normal position. Dilatation and curettage revealed small amount of curettings (about two grams) showing moderate hyperplasia.

No treatment was given this patient and she had not had a return of the vaginal bleeding.

Mrs. C. R., aged 37. Irregular menstruation for eight years, menorrhagia for one year. Gravida 5. Menstrual history: Onset at 13 years, regular until present illness, every 28/4 days. At present menstruation occurs every two to three months with very excessive flow, 9 to 15 days; considerable clots.

Physical examination: Essentially negative, except for extensive varicose veins. Dilatation and curettage revealed the presence of endometrial hyperplasia. Metabolic rate minus 8 and minus 10. Patient was given thyroid and anterior pituitary as given routinely above. Patient has had three normal periods since dilatation and curettage. Menstruation has continued excessive but not of as severe a nature.

Miss L. M., aged 16. Onset of menstruation at 13, has always been very irregular with profuse vaginal bleeding. Within the last year menstruation has continued about 15 days at each period. Basal metabolic rate minus 20 and minus 21. This case has not been curetted because of the objection of the patient's mother, but patient is receiving thyroid and anterior pituitary at the present time. No definite conclusion has yet been drawn as this is a recent case.

SUMMARY AND CONCLUSION

1. The pathological physiology of endometrial hyperplasia is reviewed.

2. The recent treatment of endometrial hyperplasia is discussed. It is believed that a quicker response is received when treatment is instituted immediately after curettage.

3. Nine cases are reported; of course too small a series for any deduction but types of endometrial hyperplasia and age incidence are exemplified.

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TREATMENT OF GLAUCOMA BY SYSTEMIC MEASURES

REPORT OF CASES

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Dr. Christensen has given you an excellent paper on the autonomic innervation of the nasal mucosa and this brings to mind the well known work of the late Dr. Sluder. You may recall that he reported[1] relief of pain in congestive glaucoma by cocainization of the nasal ganglion and Dr. Luedde[2] reported reduction of tension in simple glaucoma by the same means. Stimulated by this we tried to control glaucomatous tension by even more remote mediation and at the same time avoid changes in the size of the pupils.

Let us consider briefly the general question of primary glaucoma. It is defined as a disease of unknown etiology characterized by increased intraocular tension. This increased tension must be due either to obstructed outflow of fluid or increased inflow or to both.

The most widely accepted view is that obstruction to the outflow is the dominating factor; if this be true the problem is largely mechanical. Consequently treatment has been chiefly directed toward relief of the mechanical obstruction, sometimes successfully but many times not.

Some of us have long felt that obstruction alone does not account for the very earliest manifestations in some cases of primary glaucoma, but I shall not go into the reasons for this thought except to say that even in simple glaucoma there is an increase in the solids of the aqueous as has been rather definitely shown by Troncoso[3] and others.

The aqueous is probably derived chiefly from the blood in the ciliary capillaries and if there is an increase in the solid content of the aqueous in primary glaucoma, this could hardly be brought about except by increased permeability of the walls of these capillaries. Hence we felt that the microscopic appearance of the ciliary body in primary glaucoma should reflect this. Accordingly a study was made of the ciliary body in primary glaucoma. Compared with the normal, the glaucomatous slide will show these changes described by Collier as follows:

> Microscopic examination of the enucleated eye in eight cases of clinically diagnosed glaucoma simplex showed somewhat dissimilar pathology in four cases and fairly uniform pictures in the other four cases. Only one of the eight cases showed organic obliteration of the filtration angle. Six cases showed dilated lymph sinuses in the iris, four showed dilated spaces of Fontana and three showed dilated spaces in the region of the corneoscleral venous plexus. Obviously, organic obstruction of lymph drainage is not a relatively important factor in the glaucoma of these series. Six of the eight cases showed an apparent increase in the number of vessels in the ciliary body, the ciliary processes, the iris, particularly about its base, and in the region of the corneoscleral venous plexus. It seems probable that this is the result of a chronic, low grade congestion because the lumina of the vessels are usually increased in size as well. Microscopically, this speaks distinctly for the state of chronic or often repeated congestion although clinically these cases were said to be of the "simple," non-congestive type. Either there had been congestion at other times or the degree of chronic congestion of these vessels found microscopically is less than that which may be recognized clinically. Two of these cases showed a small round cell infiltration about the vessls and slight diffuse round cell infiltration and some interstitial proliferation. Such changes are regularly found in the "congestive" type of glaucoma. One case showed a free filtration angle, but scarring of the iris, ciliary body and region of the corneoscleral venous plexus had no apparent vascular change. The widely distended lymphatics seen at times with wide filtration angle but congested corneoscleral venous plexus, suggests that glaucoma may depend upon vascular congestion to a considerable extent.
>
> Absorption of fluid by vessels of the corneoscleral venous plexus from the lymphatics draining fluid from the chambers of the eye will be markedly impaired or cease if congestion of the venous plexus occurs. Congested vessels tend to pour out more fluid rather than absorb fluid from tissue. On this basis congestion found in six of eight cases offers a ready explanation of glaucoma on the basis of both increased fluid transudation and poor fluid absorption. Obliteration of the filtration angle and organic obstruction is more common in the "congestive" group and may be a more useful explanation there, but such explanation is of possible use in only two of eight cases of these series of "simple" glaucoma.

With these changes in mind we began to speculate on the cause for this. Realizing that certain predisposing factors such as small eye,

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etc., cannot be ignored, we felt nevertheless that in dealing with primary glaucoma we had, as one man puts it, a "sick eye in a sick body." Neither could we satisfy ourselves that the systemic blood pressure played an all important role. This led to an attempt to reduce the increased tension by systemic medication and at the same time avoid change in the general blood pressure. Heretofore systemic medication had been limited mainly to remedies which tended to lower the general blood pressure or deplete the body fluids.

REPORT OF CASES

Case 1 was a white female, Mrs. K. O'L., aged 70 years, first seen by me June 22, 1932, with history of cataract extraction both eyes several years previously. The right eye had been treated for chronic glaucoma with attacks of acute exacerbation for some months previous to the time I first saw her.

General health fair for her age, weight about 90 pounds, blood pressure 152/100, intraocular tension from 35 to 40 mm.Hg. without miotics and about 27 average with miotics. (I might say that all these measurements were made with a Schiotz tonometer and with it the normal average tension is 18 mm.Hg., with the upper limit of normal 23 mm.) She was first given 4 m. epinephrine chloride 1/1000 intramuscularly, June 25, 1932, and the intraocular tension fell in one hour from 40 mm.Hg. to 30 mm.Hg. The blood pressure was 154/100 before and 154/100 after. There was no change in the size of the pupil. Two days later the tension was 38 mm.Hg. and she was given 6 m. epinephrine chloride. One hour later the tension was 25 mm.Hg. with no appreciable change in blood pressure or size of pupil.

This patient was carried along for about one month with other medication keeping the intraocular tension at 25 mm.Hg. and on August 22 all medication was stopped. When next seen on August 30 the tension was 35 mm.Hg. She returned September 1 with an acute congestive attack developing and the tension 40 mm.Hg. At that time she was given 8 m. epinephrine hypodermically and one hour later the tension was 29 mm.Hg. and 48 hours later the intraocular tension was 21 mm. It would appear that an acute attack was aborted by the epinephrine, but one could not expect much effect in a well established congestive attack because of the strangulation.

Case 2, white male, P. R., aged 45 years, first seen by me in 1922 with well advanced primary glaucoma of the left eye. Operation was advised. He went to another oculist at that time and was not seen again until February, 1932, with the left eye totally blind, cornea staphylomatous and tension still high. Eye painful. Left eye was enucleated at this time. Right eye showed glaucomatous changes at this time and was operated on two months later for reduction of tension. Following operation on the right eye the pain was relieved, but the tension remained 37 to 40 mm.Hg. Two months after the operation the tension was 37 to 45 mm.Hg. General health good, blood pressure 130/88, basal minus 13. With the tension around 40 mm.Hg. and blood pressure 130/88, he was put on ephedrine sulphate, gr. 3/8, twice daily by mouth, June 28, 1932. June 29 the tension was 37 mm.Hg.; June 30, 26 mm.Hg.; July 1, 18 mm. where it remained for two weeks while using the ephedrine. There was not more than 2 mm.Hg. change in the blood pressure at any time.

Case 3 is T. McD., white male, aged 61 years, first seen August 28, 1931, with history of failing vision of the right eye for about two years. He also gave a history of Bells paralysis on the right side of fifteen years' duration and diabetes for several years.

At first examination the right eye was very painful, marked injection of the entire globe and the cornea very steamy. Intraocular tension right eye 50 plus mm.Hg., left eye 30 mm.Hg. Focal infection from bad teeth was eliminated and the diabetes was said by the internist to be under control. All local medication failed to reduce the tension below 45 mm.Hg. in the right eye. On September 29, 1931, right eye was operated on for relief of pain. The pain was relieved and the patient went along comfortably but the tension gradually rose again until the following June when the readings varied from 45 to 60 mm.Hg. in the right eye. The tension of the fellow eye was 25 to 30 mm.Hg. but well controlled with miotics. Blood pressure was 144/72, the diabetes said to be still under control and according to the patient himself his general health was excellent.

He was given pilocarpine hydrochloride, gr.1/30, by mouth August 26, 1932, twice daily and then three times and the tension, which had been 52 mm.Hg. or higher for several days dropped to 40 mm.Hg. and remained so for four days at which time the pilocarpine was withdrawn. The day after medication was stopped the tension was still 40 mm.Hg. but in 48 hours it had risen to 48 mm.Hg. and six days later was back to 55 mm.Hg. with no demonstrable change in systemic blood pressure or size of pupil.

Case 4 is J. C., white male, aged 48 years, first seen at the clinic the early part of 1931 with a congestive exacerbation of chronic glaucoma in the right eye and the eye was operated on for relief of the condition. He was treated at the clinic for bilateral glaucoma until June 20, 1932, when he came under my care for special study. At that time the intraocular tension was 35 mm.Hg., right and left. Both disks showed total glaucomatous cupping. Blood pressure was 108/68 and basal rate minus 9.

The left eye was used for the test because it had not been operated on and is given here although the tension curve of the eye operated on was very similar. With left eye tension 35 mm.Hg. he was given physostigmine sulphate, gr. 1/100, hypodermically on July 29, 1932. One hour later the reading was 30 mm.Hg. Twenty-four hours later with the tension of left eye at 35 mm.Hg. he was given physostigmine sulphate, gr. 1/60, hypodermically and one hour later tension was 30 mm.Hg. The tension was taken daily for five days and remained at 35 mm.Hg. On August 5, 1933, he was given physostigmine sulphate, gr. 1/100, per orum three times a day. Twenty-four and forty-eight hours later the tension was still at 35, but the next day (72 hours later) the tension was 30 mm.Hg. On August 10 it was down to 25 mm.Hg. where it remained until August 18 when the physostigmine was withdrawn. Within three days it was up to 29 mm.Hg and in ten days up to 32 mm.Hg. At no time was there a significant change in the systemic blood pressure.

Case 5 is Mrs. J. T., white female, aged 69 years, first seen July 28, 1931, with the history of failing

vision for a long time. Right eye vision, no light perception; left eye vision 15/200, improved to 20/20 with lenses. Both eyes showed total glaucomatous cupping of the disks and the form field of the seeing eye was much reduced. The intraocular tension was, right eye 43 mm.Hg., left eye 35 mm.Hg. Miotics did not reduce the tension of right eye below 35 mm.Hg. or the left eye below 30 mm.Hg.

A general examination showed nothing except systemic blood pressure somewhat high. Operation was advised on the seeing eye and done November 4, 1931, with permanent reduction of the intraocular tension up to the present.

On July 21, 1932, the blind eye was perfectly quiet, but the intraocular tension was 45 to 55 mm.Hg. over several weeks' time and systemic blood pressure 142/90. She was given 1/2 c.c. obstetrical pituitrin hypodermically on July 21, 1932, and one hour later the tension, which was 50 mm.Hg. was down to 40 mm. Twenty-four hours later the tension was still 40 mm.Hg. and she was given 10 m. pituitrin and one hour later the tension was 35 mm.Hg. By daily hypodermic injections of pituitrin the tension was kept below 40 mm.Hg. for two weeks. There was no appreciable change in the general blood pressure.

Case 6 is J. C., the same patient as in case 4 who was used for physostigmine with blood pressure 106/66, basal minus 9, with intraocular tension left eye constantly between 35 and 40 mm.Hg. He was put on desiccated thyroid, gr. 1/2, three times a day, October 4, 1932, and the next day the tension was 37 mm.Hg., the same as before. In forty-eight hours the tension was 32 mm.Hg., and in seventy-two hours 27 mm.Hg. The tension remained at 30 mm.Hg. for three days and the thyroid withdrawn on October 10. The tension gradually rose to the former level in four days. Again there was no appreciable change in the blood pressure or size of the pupil.

Case 7, H. B., a white male, aged 30 years, a very neurotic individual, first seen November 28, 1931, with the history of headaches and a hard feeling of the eyes. He had normal vision 20/20 right and left, but complained that things looked "hazy."

The disks and form fields were normal, pupils moderately dilated but reacted well to light and accommodation. Intraocular tension was found to be variable, from 25 to 30 mm.Hg. over a period of six weeks. The tension could be controlled by miotics. Tonsils were said to be bad so were removed and the intraocular tension returned to normal within a week. However, the tension gradually rose until within two months it was up to 30 mm.Hg. during the last two weeks in March and blood pressure 120/80.

He was put on sodium bicarbonate three times a day by mouth on March 28 and by April 2 the tension was down to 18 mm.Hg., right and left. It remained between 15 and 20 mm.Hg. for three weeks without miotics.

In view of this lowering of intraocular hypertension without manifest local changes in the eye it would appear that obstruction alone does not account for all cases of primary glaucoma. On the other hand, it appears that there is a systemic element in the etiology of primary glaucoma. Since there was no change in the general blood pressure we may believe that general blood pressure is not a significant factor.

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THE TREATMENT OF NEUROSYPHILIS

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AND
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During the last twenty years the treatment of neurosyphilis has undergone most important changes. Mention may be made of a few of the greater advances, such as the tryparsamide of Jacobs and Heidelberger (1915), the use of artificially induced malaria by von Jauregg (1917), and the introduction of various forms of bismuth by Levaditi and others. Several of the former heroic methods of treatment of neurosyphilis have been practically discarded because of these simpler and more effective agents. But in spite of such valuable advances and an increasing experience, the treatment of neurosyphilis is far from satisfactory. Although many patients may be held in an arrested state for long periods of time, our present therapy involves serious risks for the patient and under the best conditions offers statistically only about a one to one chance for improvement. Failure in individual cases should not discourage us in applying most thoroughly these methods which we now have at our disposal, for they offer to the patient a much brighter outlook than could have been predicted twenty years ago.

The patients under discussion number 149 and were selected for study only in so far as they had been under treatment for at least six months, did not appear in the previous reports of Schwab and Cady[1] and were without ocular syphilis in a degree sufficient for special consideration. All were treated in the neurosyphilis division of the Washington University clinics and many of them had irregularities in treatment to be expected from patients in similar social and environmental situations. Had they been private patients, it is felt that the statistical results would have been somewhat better.

As far as possible the treatment was reduced to a routine though with such a disease as neurosyphilis individualization is always necessary. When possible, the treatment was administered by giving tryparsamide, neoarsphen-

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amine, and mercury or bisbuth in rotation at three to four day intervals. When patients were found to be intolerant to any of these drugs, something else of the same class was substituted if that were possible: for example, silver arsphenamine for neoarsphenamine, mercury for bismuth. In a few of our cases stovarsol was substituted for tryparsamide but these have not been considered in this report.[2] Little difficulty has been experienced with toxic amblyopia with this method of rotation of drugs when the size of the dose of tryparsamide has been given in gradually increasing amounts until the tolerance of the patient has been determined.

Table 1. *Treatment Received by Composite Patient*

		Average
Number of patients	149	
Number of injections of tryparsamide	4354	29
Number of injections tri-valent arsenic	3771	25
Number of injections mercury or bismuth	8582	59
Number of courses of treatment		6
Number of months of treatment		21

Table 1 shows the treatment received by the composite patient. Each course of treatment was of ten weeks' duration, followed by a rest period of a month. There seems to be some justification for the continuous method of treatment when the intervals between injections are lengthened, but it has been found that patients who do this of their own volition eventually discontinue treatment entirely. For this reason they are all treated as intensively as possible, though "intensive" treatment is not applicable to neurosyphilis.

It is our belief that tryparsamide offers the greatest hope to the neurosyphilitic even though it cannot be considered a specific. It is the sheet anchor of treatment regardless of the fact that it is not spirocheticidal. It does exert a tonic effect upon the nervous system so that it makes a better resistance to the inroads of syphilis. Cure cannot be expected from the use of other drugs for they are hardly specifics, viewed from the angle of neurosyphilis. In this series, malaria and other forms of heat administration have not been used because they require institutionalization of the patient, or offer other difficulties too great to be overcome by the clinic patient. It is noteworthy that those having considerable experience with malaria in paresis[3] are inclined to take advantage of tryparsamide before or after the series of malarial paroxysms.

Table 2. *Results of Treatment*

	Number	Per cent
Patients returned to work	55	37
Patients remaining at work	22	15
Patients quitting work by inability	3	2
Patients unable to return to work	69	46
	149	100

The most superficial, as well as one of the most important results of treatment from two to six courses is shown in table 2. Most patients who were working when treatment was started remained at work. Over a third of all the patients were able to return to work. Over one half were able to support themselves or contribute to the support of their families. This table shows that treatment of neurosyphilis is worth while in a statistical sense because it makes the group self-supporting. Were it not for the present industrial depression these results would have been still more optimistic.

Table 3. *Clinical and Laboratory Results*

Type	Cured*		Improved		Arrested		Worse	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Paretic 41								
Clinical	1	2	16	39	19	46	5	12
Serologic	1	7	8	62	3	22	1	7
Tabetic 38								
Clinical	1	2	17	45	17	45	3	8
Serologic	2	18	7	63	1	10	1	10
Tabo-Paretic 8								
Clinical			3	37	5	63		
Serologic	1	50	1	50				
Men.-Vasc. 62								
Clinical	3	5	40	64	16	26	3	5
Serologic	9	35	11	42	5	20	1	3
Summary 149	6	4	74	50	58	39	11	7

* The word "cured" is used with a degree of question.

Table 3 summarizes the clinical and laboratory results so far as they could be obtained. There is a discrepancy between the clinical and laboratory results for several reasons. It is quite possible for a patient to be "cured" in a laboratory sense and not cured clinically. On the other hand, no patient was considered as cured clinically unless he was also a laboratory cure. By this, it is meant that the patient was treated for two courses after all laboratory tests were negative, including the colloidal gold curve, and the serology remained negative for the duration of two years without any treatment. Furthermore, it has been difficult to obtain spinal fluid data because of the added cost of the hospitalization to the patient, or to the institution. Subsequent reports will be better in this regard since spinal puctures are now being done on ambulant patients in the clinic. It will be noted that the table shows almost invariably a higher percentage of laboratory than of clinical improvement. Undoubtedly part of this is due to the smaller number of patients so considered, and because the patients were selected for spinal fluid tests on account of apparent improvement, or because they were apparently worse.

The more favorable reaction to treatment of patients with meningovascular syphilis is noticeable. Meningovascular syphilis might be regarded just as the name indicates and not a disease of the nervous elements of the nervous

system at all. Of course this is not literally true, but the difference in response to drugs does indicate that it is easier to treat such patients successfully than those with paresis or tabes. The progress of those having parenchymatous involvement is less satisfactory. The percentage of marked improvement of paretics is being fairly well fixed around 40 per cent, here as well as elsewhere. Table 3 indicates slightly more improvement in results than in the previous report of Schwab and Cady which may be due to the increased employment of bismuth and to a greater experience in the management of treatment, principally when not to treat. If errors have been made in treatment they have been on the side of undertreatment rather than overtreatment.

Table 4. *Time and Treatment Required to Render 13 Patients Serologically Negative*

Type	Years treated	Number of Injections Tryp.	Neo-S.	Hg. or Bi.
Paretic				
S. S.	3	*	*	*
Tabetic				
J. K.	2.5	31	32	106
L. B.	3	37	34	6
Taboparetic				
I. Z.	1.5	41	20	36
Meningovascular				
S. W.	3	88	54	220
C. M.	3	26	20	150
W. T.	1.5	34	34	69
C. R.	1.5	31	31	95
C. C.	2	16	12	35
J. L.	3	58	2	95
C. C.	2	45	37	211
R. D.	2	42	24	20
L. J.	3	36	38	45
Average	2.6	42	31	83

* Data not available.

Table 4 shows the length of time required and the amount of treatment given to render thirteen patients serologically negative. The composite patient was treated 2.6 years and received about six courses of treatment. It is rather surprising to find that two of these patients were serologically negative with only eighteen months of treatment, but our experience has indicated that occasionally "serological cure" may occur in still less time than that. There are other patients who respond little with much more prolonged treatment.

SUMMARY

There seems to be little doubt that in a group of patients with all kinds of neurosyphilis treated with tryparsamide and other drugs concurrently a few will be apparently cured, many more will be considerably improved, and still others will be arrested in the course of the disease. Neurosyphilis does not present the almost hopeless picture of fifteen years ago before the advent of tryparsamide and the various forms of heat therapy.

From an economic viewpoint, treatment of indigent neurosyphilitics is worth while since it renders over half of a group selected at random able to support themselves and prevents many others from becoming institutional charges.

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SPINAL PUNCTURE AND SPINAL FLUID

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The chairman of the program committee suggested that I present a paper to this society on spinal puncture and spinal fluid. He was no doubt influenced in making the suggestion by the interest in the subject which was stimulated by the recent epidemic of encephalitis. All too readily I accepted the suggestion, for, if I had taken a moment for reflection, I would have realized the extremely large dimensions of the subject.

There are at least nine modern textbooks on this subject, three[1] of which I have used as reference. Like textbooks in general, these books treat the subject in an abbreviated manner. It will be evident that in the short period available I must be extremely brief in my statements, and that I shall be compelled to omit references to some important aspects of the subject.

There is no justification for making spinal puncture a routine procedure such as general physical examination, temperature and blood pressure determinations, urinalysis, blood counts, etc. There are, however, numerous indications for spinal puncture. It is an absolutely essential therapeutic and diagnostic procedure in selected cases. The proper selection of cases depends upon history, physical examination and often upon other data. A proper neurological examination is usually of chief importance in the selection of cases. Above all and most difficult is the proper evaluation of the accumulated clinical data. Before spinal puncture is performed, this question should be answered affirmatively by the physician: "Is there a prospect that spinal puncture will be an

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aid in the diagnosis and treatment of the patient?"

Other than the limitations in medical knowledge and our errors in judgment, there are important factors which limit the useful application of spinal puncture. Physicians frequently have erroneous opinions regarding the procedure. They often look upon it as a painful and major operation to be used only in cases of extreme necessity. They frequently do not realize the full necessity of the procedure in diagnosis and in treatment. There is a tendency on the part of some to greatly magnify the dangers of spinal puncture; but there are also others who do not appreciate the possibilities of harm to the patient. A physician has stated that he would never allow a needle to be stuck into his back. A nurse recently described the procedure as brutal. Barbarous is another adjective which has been applied. An oculist advised a patient to have a spinal puncture performed. The patient replied that he would rather die. This patient had been in a position to observe the procedure on repeated occasions. A dentist recently told me that he had witnessed the operation of spinal puncture. I asked him what he thought of it and he replied that he would rather have encephalitis than to have a spinal puncture.

My conclusion from these observations and similar data is that spinal puncture is often in disrepute with physicians, with patients and with laymen in general. The remedy for this undesirable situation is entirely simple. This in my opinion is the remedy: He who performs the operation of spinal puncture should use the same technic as he would wish to be followed if he were the patient. The operator, if possible, would be the person whom the physician would select for himself or for his dearest friend. I would not choose to have a spinal puncture performed on me by a tyro, and I believe that all physicians take the same attitude as regards themselves. The operation of spinal puncture is not complicated and it is usually entirely simple, but the operator should notwithstanding have had a period of appenticeship to a successful operator.

The contraindications to spinal puncture are few. Among them may be mentioned certain deformities of the lumbar region and infections of the lumbar region which might be carried to the spinal canal by puncture. In the acute exanthemata and in septicemia there should be a strong indication for puncture before it is undertaken. When there is a probability of brain tumor spinal puncture, if undertaken, should be performed in such a manner as to minimize the possibility of injury to the patient. Finally, spinal puncture should not be performed for diagnostic purposes unless the services of one who is competent to make the important chemical, bacteriological and serological tests is available.

The indications for the procedure are too numerous for an attempt to mention all of them or to discuss any of them in detail. These indications fall under two heads: (1) diagnostic, and (2) therapeutic. Quincke, who in 1891 introduced modern spinal puncture, used it more as a therapeutic than as a diagnostic procedure. Today the diagnostic possibilities greatly excede the therapeutic possibilities. In both fields enormous advances have been made since Quincke made spinal fluid easily obtainable from the living body.

The indications for diagnostic puncture according to Levinson[1] are: Suspected meningitis, suspected poliomyelitis, suspected encephalitis, hemorrhage of the brain, neurosyphilis, coma, convulsions, paralysis and injection of air and lipiodol. Frequently the physician does not find it possible to suspect a single condition. He may be confronted with several possibilities. He is often confronted with obscure conditions and in some instances he may be credited with unusual acuity if he only suspects disease of the central nervous system which may be revealed by spinal fluid examination. The indications for spinal puncture are best known and appreciated by the clinician. A list of indications like the above is of little value. There can be no indications for spinal puncture without history, physical examination and clinical judgment. I shall not dwell in greater detail upon this subject and I conclude its consideration by stating that the indications for spinal puncture for diagnostic purposes are to be found in the proper examination of the patient and the proper interpretation of the findings.

In discussing the therapeutic indications for spinal puncture I can accomplish little more than to give a list of conditions for which the procedure has been recommended. Spinal fluid drainage has been recommended in eclampsia, coma of uremia, convulsions of children, persistent headaches of certain types, tinnitus, deafness, etc. It is the responsibility of clinicians to know if there is sufficient evidence to warrant spinal drainage in these conditions.

In some of the above conditions there is at times an increased intracranial pressure. Increased pressure has various and numerous causes and spinal fluid drainage for the purpose of lowering the pressure has undoubted merit.

In tetanus the subarachnoid injection of magnesium sulphate and antitetanic serum has been advocated. The subarachnoid injection of antipneumococcus serum and certain drugs in

pneumococcus meningitis may rarely be curative. In this type of meningitis, as in all cases of bacterial meningitis, fluid drainage is frequently beneficial but it is seldom curative.

The indications for fluid drainage in cerebrospinal syphilis may be rare but in my own experience I have seen the indication. The patient had attacks of headache of extreme severity. The fluid pressure was raised to a point rarely observed. The patient was relieved on repeated occasions by the drainage of from 30 to 50 c.c. of fluid. I am not impressed by the various suggestions to treat syphilis of the central nervous system by means of injections into the subarachnoid space.

The diagnosis of bacterial meningitis should be made early if for no other reason than that it is highly desirable to recognize meningococcus meningitis early in its course. The benefits of early diagnosis of epidemic meningitis, its specific treatment and the manner of accomplishing these benefits are too well known to justify further consideration in this paper.

TECHNIC OF SPINAL PUNCTURE

An aseptic technic should always be practiced. In other respects considerable variations are permissible and are often indicated. Most authors favor the recumbent lateral position with the back bowed. This is the position of choice in cases of suspected meningitis and brain tumor and at all times with very ill patients. When there is no contraindication I have the patient in the sitting position. The site of puncture is a point on the skin usually at or near the intersection of the midline and Quincke's line which connects the highest points of the iliac crests. I do not draw the latter line but attempt to locate it approximately by inspection. Then I palpate with the index finger of the left hand the interspaces near the intersection and select that space which offers ample room for the introduction of the needle. I believe I usually use the third lumbar interspace, which not infrequently is a considerable distance above the historical point. Contrary to the advice of Quincke and others who have advised the insertion of the needle about one-half inch from the midline, I have always inserted the needle in the midline. Sometimes it requires considerable force to pierce the posterior spinous ligament.

No attempt to puncture the dura with a single thrust of the needle should be attempted. Such attempts are likely to carry the point of the needle too far thereby causing pain from striking a spinal nerve or hemorrhage into the spinal canal. Since in adults the spinal canal is from 40 to 100 mm. from the skin, the needle should be introduced for a distance of about 40 mm., the stylet withdrawn and then the needle should be pushed slowly inward until fluid begins to flow or the needle strikes a bony barrier. The latter event will indicate that the needle has not been properly directed.

Needles of various lengths and diameters have been used for the operation. A needle 30 mm. long is long enough for infants less than one year old, but with older children longer needles are usually needed. A child three years old may require a needle 40 mm. long and such a needle will on some occasions be long enough for an adult. For routine hospital use a needle 80 mm. long of gauge 18 is suitable. Rarely, according to Levinson,[1] such a needle will not be long enough. Some needles are too thick and others are too fine. Presumably the finer the needle the less pain is caused and the smaller is the dural opening. A needle may be so fine that the normal pressure will not force fluid through it. With the sitting position for the patient finer needles may be used than with the recumbent position because of the marked differences of pressure. A needle of small lumen which is suitable for normal fluid will be too small for the passage of the thick fluid of some cases of meningitis. Fine needles should not be used when meningitis is suspected. Another point about needles will be mentiond later.

There seems to be a general agreement among writers that a general anesthetic is necessary on rare occasions in the performance of spinal puncture. The extremely restless, excitable and violent states of patients and the convulsive states furnish indications for general anesthesia.

Very few recommend the practice of routine local anesthesia. Notwithstanding the fact that I have not the support of common practice or of the majority of writers, I make it a rule to use local anesthesia with the conscious patient. Writers have stated that ethyl chloride spray or a few drops of novocain might be given to advantage in some cases. The reason for the common attitude against anesthesia is that spinal puncture is not sufficiently painful to require any. Spinal puncture without anesthesia may be slightly painful or it may be extremely painful. At times, especially when repeated punctures are unsuccessful, this procedure may be a kind of torture; hence the descriptive words of patients and witnesses: "brutal" and "barbarous." I have been told by the opponents of anesthesia that the process of injecting the anesthetic is as painful as the puncture. This is true in some instances. This statement calls to our attention the fact that pain cannot be entirely eliminated, because the application of the

anesthetic is more or less painful especially to the hypersensitive patient. This pain provokes no complaint from the rational and reasonable patient if a proper technic is followed. The patient frequently asks if he is going to be hurt, and if he does not ask I tell him that I intend to hurt him. But I hasten to add that I intend to hurt him very little. I tell him that he will feel a small hypodermic needle and I let him know when he may expect to feel it. I ask him to let me know if the pain is severe.

The first introduction of the hypodermic needle into the skin is frequently the most painful part of the entire procedure. About 2 c.c. of novocain solution are injected into the skin and several cubic centimeters of the solution are injected beneath the skin for a distance of from 1.25 to 1.5 inches. With the site of the puncture anesthetized in this manner it is almost the rule that even the hypersensitive patient does not feel pain when the puncture needle is introduced. Proper local anesthesia is not an absolute guarantee against pain and I never assure the patient that he will feel no pain; but local anesthesia is an absolute guarantee that less pain will be experienced with it than without it. With local anesthesia and proper technic a large part of the warranted objections to the procedure may be eliminated. When the objections of patients and physicians are removed the procedure will enter into a wider field of legitimate usefulness.

AFTER-EFFECTS OF SPINAL PUNCTURE

Since a list of deaths attributable to spinal puncture has been reported and since it is probable that a larger list has not been reported, it is manifest that this is a subject of importance. Considering the very large number of punctures which have been performed, the list of fatalities gives a very small death rate. There has been no adequate explanation for some of the deaths even after postmortem examination. Many of them, however, are explained by the presence of tumor, abscess and other lesions of the central nervous system.

Of considerable importance are the more or less minor after-effects of puncture. These effects are usually experienced by patients with normal fluids. When there is increased pressure or meningeal irritation of any kind the patient is more likely to experience relief than to suffer after-effects. It is rare to observe postpuncture symptoms or complaints with patients who are confined to their beds at the time of puncture. Hence, with these patients I do not take special precautions to prevent after-effects.

These effects are largely confined to ambulatory patients. The complaints and symptoms are very variable in their nature and in their intensity. There may be only slight headache which promptly passes away never to return. In other instances the headache returns only when the patients sits up or stands up. When the patient again lies down he is entirely relieved. This condition may last for days or even for weeks. The headache may be severe and there may be rigidity of the neck, dizziness, nausea and vomiting even when the patient remains flat in bed. I have had patients incapacitated for several weeks, but I have not observed permanent ill effects.

It is highly desirable to limit the intensity of these after-effects, and I believe it is possible to accomplish this to a very large extent. We do not know the exact cause of postpuncture complaints but it is probable that the following are among the chief causes: (1) rapid removal of fluid, (2) removal of too much fluid, and (3) leakage of fluid through the dural opening made by the spinal puncture needle.

If instead of a needle of 18 gauge or one larger, we use one of 21 gauge, such as the Sise needle,[2] we cannot remove the fluid rapidly; the fluid flows so slowly that we are not likely to remove more than is necessary for examination and, lastly, the hole in the dura is not likely to be large enough to permit the escape of spinal fluid. This needle in large part offers a solution of the problem of postpuncture disability. I have had frequent undesirable experiences with ambulatory patients when I used larger needles. There was a time when I refused to perform spinal puncture in my office because of the great probability of reactions. Now with the Sise needle I perform spinal puncture in the office with no more hesitation than I perform it in the home or in the hospital.

THE SPINAL FLUID

It is the rule that before one can make satisfactory progress in the study of a clinical subject, he must have knowledge of fundamental or basic subjects. As concerns the spinal fluid, anatomical facts and physiological facts and theories are essential to the proper study of the clinical aspects of the subject. It is not my purpose to give a proper discussion of the anatomy or physiology of this subject. However, it seems advisable to state a few physiological facts before entering upon a discussion of the pathology of the spinal fluid.

The normal fluid is indistinguishable from water in appearance. In all other physical characteristics water and spinal fluid are not identical. In the 1.5 per cent of the spinal fluid which is not water there are many constituents both organic and inorganic, and as regards both

types of constituents the composition of the fluid is complex. Qualitatively spinal fluid resembles blood, but quantitatively there are vast differences in some of the constituents.

There is little in common between the blood and the spinal fluid in their normal cytology. Normal spinal fluid contains no red cells and very few white cells. The latter are for the most part small lymphocytes. It is important to establish the normal count as nearly as it is possible to do. Using the blood counting chamber, the normal count is usually from 0 to 4 cells per c.mm. Counts of 5 to 10 cells are usually pathological, and counts of more than ten cells are always pathological.

Likewise, in several other respects we must know the normals for it is only by knowing the normal that we can appreciate the abnormal. It is important to note the color of the fluid for pathological variations in color may give information of value. The fluid should next be examined for turbidity and the degree of turbidity. The turbidity of fluids is usually due to the presence of numerous white blood cells, but red blood cells may be present and in rare instances the turbidity may in large part be due to bacteria. We should determine the cause of the turbidity by cell counts and the examination of smears of the sediment. A total cell count, with an estimation of the percentage of the types of white cells, should be made on all fluids excepting those which are definitely purulent. With purulent fluids a note as to the degree of turbidity may displace cell counts.

Some clear or slightly turbid fluids will show, if allowed to stand undisturbed, a fibrin pellicle. Observation of a pellicle is of some diagnostic importance as it is most suggestive of tuberculous meningitis.

Fluids which show a grayish turbidity should be examined for bacteria using a direct smear of the sediment. The finding of Gram negative intracellular diplococci is almost absolutely positive evidence of meningococcus meningitis.

Clear or slightly turbid fluids with from 30 to 300 cells per c.mm., positive for globulin and pellicle and with negative Wassermann reaction suggest tuberculous meningitis. Direct smears should reveal tubercle bacilli in about 50 per cent or more of cases of tuberculous meningitis. This demonstration requires careful technic and often tedious search.

It is not essential to culture all fluids. Fluids which show purulent exudate and few others should be cultured. Care should be exercised in the selection of proper media for the majority of organisms which may be found in the spinal fluid have fastidious requirements. There is a rather long list of organisms which have been found in the spinal fluid. These include bacteria, fungi, protozoa, etc. The bacteria which are commonly found in the spinal fluid are tubercle bacilli, meningococci, streptococci and pneumococci.

The globulin of the spinal fluid is increased in many conditions, hence the globulin test by itself cannot point to a diagnosis. A positive test indicates pathology. It may be the only test which reveals an abnormality in the routine examination of the fluid. The degree of the globulin reaction taken with other findings will at times suggest the correct diagnosis.

The colloidal gold reaction of Lange does not receive the appreciation which it deserves. The test has been performed in my laboratory for nearly twenty years and I have respect for it. It is of some value in various conditions but its chief value lies in the so-called paretic curve. This reaction is most commonly observed in paresis. In some instances with a paretic curve there is no clinical evidence of paresis. In such instances a preparetic condition is suggested. A paretic curve without positive Wassermann test suggests multiple sclerosis.

The quantitative determinations of sugar and chlorides of the spinal fluid are of value to a very limited extent.

The Wassermann test with the spinal fluid is extremely valuable. This test should not be used alone, nor should any single test be applied to the spinal fluid at one time. In syphilis of the central nervous system the tests of chief value are globulin, cell count, Wassermann and colloidal gold. We should not only be aware of the diagnostic value of the Wassermann test, but we should credit it with contributions which have advanced knowledge of syphilitic diseases of the central nervous system. Spinal fluid is removed for the diagnosis of syphilis and it is also removed to observe the effects of treatment. The subject of spinal fluid in syphilis is a very large one and I can do little more than to call attention to it.

I should, however, before concluding mention the Kahn test which has been applied to the spinal fluid as well as to the blood. I take it as a matter of duty to express my opinion of this test. My opinion is expressed in this quotation: "If the Kahn test gives a positive reaction, a control Wassermann test has to be made before the serologic diagnosis of syphilis can be considered reliable, because nonspecific fluctuations toward the positive side are quite frequent with the Kahn test."[3] I believe it would be a great benefit if the Kahn test were wholly discarded as a diagnostic test, for there are few greater tragedies than to erroneously place on a patient the brand of syphilis.

We can state that when we find bacteria in the spinal fluid or when a positive Wassermann test is obtained, we have made a diagnosis by the examination of the spinal fluid. But there are many pathological fluids which show nothing that is pathognomonic. We frequently observed only increase in cells and globulin. Such findings by themselves do not point to a diagnosis, but they may offer aid if properly interpreted. Such nonspecific findings may be observed in poliomyelitis, encephalitis, brain abscess, brain tumor, mastoid disease and in other conditions.

SUMMARY

The subject was found to be too large for adequate discussions of its important aspects. Emphasis was placed upon adequate examination of the patient, and upon the fact that the data of such examinations will, when properly interpreted, furnish the indications for spinal puncture. The technic of puncture and the matter of local anesthesia were considered. The after-effect of puncture was presented as an important subject, and the use of a special needle as a means of largely eliminating postpuncture reactions was recommended. It was observed that spinal puncture is often in disrepute and the suggestion was made that the usefulness of the procedure may be extended by the use of local anesthesia and by placing the operation in the hands of those who have served a period of apprenticeship. Lists of specific contraindications and indications were presented. The latter was discussed under two heads: diagnostic and therapeutic. In bacterial meningitis and in the syphilitic diseases of the central nervous system the spinal fluid affords specific diagnoses. In many other conditions the fluid is abnormal and its examination affords aids to diagnosis. The chief therapeutic indication for spinal puncture is the specific treatment of meningococcus meningitis. In other conditions the indication is less frequent but it may at times be extremely important. A few physiological facts about the spinal fluid were given and the importance of physiological knowledge was emphasized. The pathology of the fluid and the most important diagnostic tests were considered. It was essential to state the very great importance of the Wassermann test in spinal fluid diagnosis. It was considered a matter of even greater importance to mention the Kahn test and to state that a diagnosis of syphilis based upon a positive Kahn test is unwarranted.

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ROLE OF PHARMACOLOGY IN DEVELOPMENT OF IDEAL ANESTHESIA

C. D. Leake, San Francisco (Journal A. M. A., Jan. 6, 1934), states that in the development of ideal anesthesia pharmacology must play a major part, particularly in the critical appraisal of the relative merits of new chemicals proposed for use in anesthesia. Significant advance may follow studies on the relation between chemical constitution and biologic action (biochemorphology). Such a possibility is already promised for inhalation anesthesia by observations on the cyclohydrocarbons, unsaturated ethers, and halogenated unsaturated hydrocarbons, and especially for preanesthetic hypnotics and local anesthetics by a variety of chemical types. Unfortunately, commercial considerations have largely dominated this field, so that proper pharmacologic data on new drugs, especially relating to toxicity and efficiency in comparison with related or commonly used agents, have not usually been furnished physicians to enable them to judge whether or not the new drugs are worthy of clinical use. Such data may advantageously be secured by cooperation with university medical laboratories. Loevenhart proposed a cooperative therapeutic institute for obtaining data of this sort under ideal conditions but unfortunately commercial houses were unwilling to establish and support it.

TREATMENT OF ERYSIPELAS IN CHILDREN: COMPARATIVE STUDY

Louis M. Nightingale and Saul Starr, Brooklyn (Journal A. M. A., March 10, 1934), treated fifty-one patients under 12 years of age suffering from erysipelas with ultraviolet rays. For comparison, 101 received serum treatment, sixteen received local treatment and thirteen received various forms of treatment. The serum-treated patients received various commercial antiserums in dosage as suggested by Symmers. In the beginning the ultraviolet therapy was much as that suggested by Ude and Platou. However, the authors noticed that, especially in the infants, the dose of ultraviolet radiation had to be repeated frequently for continued spread of the lesion and persistence of a high temperature. The routine was then changed to three doses of one and a half erythema doses on successive days regardless of the clinical course. The mortality in eighty-six children (more than 1 year of age) treated with serum was 4.6 per cent, while in twenty-eight treated by ultraviolet rays the rate was 7.1 per cent. In the fifty-nine children less than 1 year of age receiving serum therapy, the mortality was 59.3 per cent, and in twenty-three in whom ultraviolet therapy was employed the death rate was 39 per cent. The number of complications that occurred in all groups was less in the cases treated earlier and in general was less in the irradiated cases than in those treated by serum. As with serum, the earlier utraviolet therapy is given, the better will be the results.

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APRIL, 1934

EDITORIALS

THE PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The delegates from the St. Louis Medical Society have proposed a set of amendments to the Constitution and By-Laws of the Missouri State Medical Association for introduction at the St. Joseph Session. We are informed that these proposed amendments have been approved by the St. Louis Medical Society.

The amendments are published on another page* together with comments by Secretary Goodwin. We urge members to read these proposed amendments and the comments by the State Association Secretary so that the House of Delegates may be prepared to act upon the amendments intelligently at the next Session in St. Joseph.

* Page 170.

THE ST. JOSEPH SESSION—77TH ANNUAL MEETING

The Seventy-Seventh Annual Session of the Missouri State Medical Association will convene in St. Joseph, May 7, 8, 9 and 10. St. Joseph physicians are working diligently to make this a successful meeting and plans which are nearing completion indicate that the Session will come up to their hopes and expectations.

All lecture sessions will be held on the Mezzanine Floor of the Robidoux Hotel and several clinical sessions will be conducted at the Missouri Methodist Hospital.

The Eye, Ear, Nose and Throat session will again be held on the last afternoon of the meeting and the program, while definitely in this field, will be of sufficient scope to interest all practitioners. Specialists in tuberculosis will conduct the program on Thursday morning.

Table demonstrations will be an innovation in this year's program. These will be presented as a part of the program on Tuesday and Wednesday and will be varied in subjects demonstrated.

Out-of-state guests who have accepted invitations to address the scientific sessions and conduct clinics are Dr. Walter L. Bierring, Des Moines, Iowa, President-Elect of the American Medical Association; Dr. G. H. Ewell, Madison, Wisconsin, urologist; Dr. Dean M. Lierle, Iowa City, professor of otolaryngology, State University of Iowa College of Medicine; Dr. John H. Musser, New Orleans, Vice President of the American Medical Association and professor of medicine, Tulane University of Louisiana School of Medicine; Dr. Charles M. Swab, Omaha, Nebraska, professor of ophthalmology, Creighton University School of Medicine.

Reverend Father Alphonse M. Schwitalla, S. J., St. Louis, Dean of St. Louis University School of Medicine, has accepted an invitation to deliver an address at the public meeting.

An open meeting will be held Tuesday evening and guest speakers will deliver addresses of interest to laymen as well as to physicians.

On Wednesday evening Buchanan County physicians will be hosts at an entertainment for members. A golf tournament and a trap shoot are being planned.

The Missouri Tuberculosis Society will have a dinner meeting on Monday evening to which the profession is invited.

The following local committees have been appointed and have their work well under way:

Committee on Arrangements: Dr. Floyd H. Spencer, St. Joseph, chairman; Drs. H. S. Conrad, W. L. Kenney, F. Gregg Thompson, W. T. Stacy and H. K. Wallace.

Committee on Entertainment: Dr. H. S. Conrad, St. Joseph, chairman; Drs. H. W. Carle and L. Robert Forgrave.

Committee on Golf: Dr. W. L. Kenney, St. Joseph, chairman; Drs. J. C. O'Donoghue and J. J. Bansbach.

Committee on Publicity: Dr. F. Gregg Thompson, St. Joseph, chairman; Drs. J. H. Ryan and W. C. Proud.

Committee on Finance: Dr. W. T. Stacy, St. Joseph, chairman; Drs. L. H. Fuson and W. Roger Moore.

Committee on Trap Shoot: Dr. H. K. Wallace, St. Joseph, chairman; Dr. Hodge Wallace.

A preliminary program of the Session appears on page 162.

HOTELS AND RATES AT ST. JOSEPH

Reservations for hotel accommodations for the Annual Meeting at St. Joseph should be made in advance of the meeting. Members should communicate with the hotel direct giving information on the accommodations they desire, including price and time of

arrival. Should there be difficulty in making satisfactory arrangements the member should write Dr. Floyd H. Spencer, First State Bank Building, St. Joseph, chairman of the local Committee on Arrangements.

The names and rates of hotels follow:

HOTEL ROBIDOUX

	Single	Double
Room with tub bath	$2.50 up	$3.50 up
Room with shower	3.00	4.00
Room with twin beds, tub		4.00 up
Room with twin beds, shower		5.00 up

HOTEL JEROME

Room with tub and shower	1.75	3.00
Room with tub	1.75 up	2.75 up
Room with shower	1.50	2.50
Connecting room with bath	1.50 up	2.25 up
Room without bath	1.25	2.00 up

ST. FRANCIS HOTEL

Room with bath	1.50 up	2.50 up
Room without bath	1.25 up	2.00 up

ST. CHARLES HOTEL

Room with bath	1.25	2.00
Room without bath	1.00	1.35

HOTEL METROPOLE

Room with bath	1.50	2.00
Room without bath	1.00	1.50

HOTEL WOODLAND

Room with bath	1.50	2.00
Room without bath	1.00	1.50

IN MEMORY OF DR. HARVEY GILMER MUDD

On another page* we reprint from the *Bulletin* of the St. Louis Medical Society the report of the memorial services held in memory of Dr. Harvey Gilmer Mudd at the Christ Church Cathedral, St. Louis, under the auspices of the officers of St. Luke's Hospital. We are glad to give space in our Journal to this beautiful expression of the many friends of Dr. Mudd both in the medical profession and among his non-medical friends so that always there shall be on record in our archives this testimonial to a colleague whose life and character drew to him the love, friendship and devotion of all who ever fell under his influence.

The young, especially the young in medicine, the old, the rich, the poor, the weak, the strong, all received, when occasion required, the beneficences of his remarkable power to calm disturbed minds, to heal an injury, to bring a smile to a fear-ladened soul.

* Page 168.

RULING ON MEDICINAL WHISKY

A supplementary ruling on medicinal whisky has been issued by the Federal Food and Drug Administration. It in no way conflicts with the labeling regulations covering beverage whisky issued by the Federal Alcohol Control Administration but gives the requirements for whisky sold for prescription purposes. The ruling is based on the Food and Drug Act which requires that drugs listed in the "United States Pharmacopoeia" shall conform to the definition in that authority.

The definition for whisky in the "U. S. Pharmacopoeia" is more rigid than the definition for "straight whisky" which the FACA issued February 6, 1934, in that pharmacopoeial whisky must be aged four years in charred wood containers and its alcoholic content must be not less than 47 per cent and not more than 53 per cent by volume of absolute alcohol. Medicinal whisky which does not conform to the pharmacopoeial standard must be labeled to differentiate it clearly from the official product. The Food and Drug Administration statement includes illustrations of labels which will be regarded as legal on such products. The statement applies to medicinal whisky sold in the District of Columbia and to whisky for medicinal use shipped in interstate commerce throughout the United States. The text of the ruling follows:

A drug sold within the jurisdiction of the Federal Food and Drugs Act as "whisky," "spiritus frumenti" or "sp. frum." must comply exactly with the definition for "whisky" in the "United States Pharmacopoeia" and otherwise satisfy the provision of that authority for "whisky." It must be labeled with a statement of the quantity of alcohol in terms of the percentage by volume of absolute alcohol.

A drug varying from the pharmacopoeial specifications for "whisky" in strength, quality or purity, but not in the identity of its constituents or of the materials from which it is made, may be sold as "Whisky not U. S. P." if the label carries a declaration of its own standard of strength, quality and purity. It may be (1) an article conforming to the definition in the "United States Pharmacopoeia" except with respect to time of aging, percentage of alcohol and content of acids and esters, or (2) a mixture of (1) with grain alcohol or grain alcohol and water, or (3) a mixture of U. S. P. whisky with grain alcohol and water. It may not contain alcohol from non-grain sources nor may it contain any substance not present in U. S. P. whisky.

We publish these regulations for the information of members so that they may be sure of obtaining pure whisky for their patients. In order to do so physicians must endorse on the blank "U. S. P. whisky." For example: Spiritus Frumenti (U. S. P.), the rest of the prescription to follow the usual style.

SAINT LOUIS COUNTY MEDICAL SOCIETY BULLETIN

The St. Louis County Medical Society on February 28 issued Volume 1, Number 1, of

the Saint Louis County Medical Society *Bulletin.* The bulletin will be published twice a month just preceding the date of the meeting of the Society. It will carry the program of the meeting, information concerning special business of the meeting, announcements of meetings of committees, personal news of members and other information of interest to the members.

The Society is to be complimented on its ability and activity which made the launching of this publication desirable and possible and also upon the well planned material which will make it valuable to its readers.

The new bulletin is the fourth component Society publication in the state. The others are The Weekly *Bulletin* of the St. Louis Medical Society, the Jackson County Medical *Journal* and the Buchanan County Medical Society *Bulletin.*

Dr. S. R. Richtarsic, Overland, is editor of the new bulletin and Dr. Clyde P. Dyer, St. Louis, is business manager.

NEWS NOTES

The Kansas City Urological Society met at the Hyde Park Hotel March 7 with Drs. Arthur D. Gray and Karl Menninger, Topeka, Kansas, as guest speakers. "Sexual Neuroses" was discussed.

Dr. J. Curtis Lyter, St. Louis, was a guest of the Jefferson-Hamilton County (Illinois) Medical Society at Mount Vernon, Illinois, March 8 and delivered an address on "The Results in the Treatment of Angina Pectoris of Effort With the Cardiac Hormone."

On April 1 the affiliated tuberculosis associations of the United States will launch a "Health Recovery Campaign" similar to health campaigns conducted in previous years. The slogan of this year's campaign will be "Tuberculosis Robs You, Public Health Protects You."

Dr. W. C. Campbell, Memphis, Tennessee, professor of orthopedic surgery in the University of Tennessee College of Medicine, will be the guest of the Pettis County Medical Society at Sedalia, April 16. He will deliver an address at a dinner meeting at the Country Club on "Ankylosis of Joints." The medical profession is invited. Members expecting to be present are requested to notify Dr. John B. Carlisle, Sedalia, secretary of the Pettis County Medical Society, who is in charge of reservations.

Dr. Charles H. Neilson, St. Louis, was the guest of the St. Clair County (Illinois) Medical Society at East St. Louis March 1 and spoke on "The Weather, Its Influence on Health and Disease."

The St. Louis Neuropsychiatric Society will meet April 2 at the St. Louis Medical Society Building at 8 p. m. Dr. J. William Beckman, St. Louis, will speak on "Encephalitis B: With Discussion of the St. Louis Epidemic." New officers of the society elected at a recent meeting are: President, Dr. Francis M. Barnes, Jr.; vice president, Dr. A. B. Jones, and secretary-treasurer, Dr. Hillel Unterberg.

The St. Louis Medical Society has appointed a centennial committee to arrange for a celebration of the one hundredth anniversary of the Society. The Society was planned in 1835, organized in 1836 and incorporated in 1837. Dr. Joseph Grindon, St. Louis, is chairman of the committee and Dr. Charles E. Hyndman, St. Louis, secretary. An executive committee and subcommittees are planned to be appointed as necessary.

The St. Louis Clinics will conduct this year's annual postgraduate course May 21 to 26 as an intensive clinical course. No papers will be read, the entire program to consist of clinics in the various branches of medicine, surgery and surgical specialties. St. Louis physicians will conduct the clinics at several St. Louis hospitals. The program is being arranged to interest the general practitioner and any special work desired will be included. A registration fee of $10 is charged and registrations or requests for information may be addressed to the St. Louis Clinics, 3839 Lindell, St. Louis.

The February issue of the *Archives of Pediatrics,* contains a number of articles which appeared in its pages during the first year of its existence. It has just completed its fiftieth year, the original number having appeared January 15, 1884. It is the first journal in this country devoted exclusively to the diseases of infants and children. In the articles reprinted in the current issue the emphasis is almost entirely on the clinical side, and while the great increase in the scope of medical knowledge has been reflected by changes in the character of the material printed, the journal still holds its important place as a journal of clinical pediatrics. Dr. Harold Ruckman Mixsell is editor of the journal. The late Dr. William Perry Watson was the first editor.

Drs. M. Pinson Neal, Columbia, and Francis E. Sultzman, Hannibal, were the guests of the Lee County (Iowa) Medical Society at Keokuk, Iowa, March 15. Dr. Neal spoke on "The Leukocyte Blood Picture in Acute Infections," and Dr. Sultzman's subject was "Some Clinical Observations on the So-Called Enlarged Thymus in Infants."

Statistics on the incidence of tuberculosis in different types of residential districts in St. Louis were presented to the St. Louis Electrical Board of Trade by Harland Bartholomew, engineer for the City Plan Commission, at a meeting of the board February 28. Among the statistical analyses presented were (1) average for city, 1.6 cases of tuberculosis reported per 1000 persons per year, (2) typical residence district, .8 cases reported per 1000 persons per year, (3) four slum districts, 5.1 cases (two white slum districts, 3.7 cases; two colored slum districts, 6.5).

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. E. Lee Dorsett, St. Louis, was the guest of the Marion County Medical Society at Hannibal, March 2, and spoke on "Ectopic Pregnancy."

The Six County Medical Group had as its guests at Sikeston, March 6, Drs. Ralph A. Kinsella and Otto Schwarz, St. Louis. Dr. Kinsella spoke on "Arteriosclerosis" and Dr. Schwarz on "Maternal Mortality."

The Caldwell-Livingston County Medical Society had as its guests at Chillicothe, March 12, Drs. John Ogilvie and George E. Knappenberger, Kansas City. Dr. Ogilvie spoke on "The Nervous State—Hyperthyroidism" and Dr. Knappenberger on "The Nervous State—Hyperemotionalism."

For a number of years the United States Public Health Service has been publishing, for the information of physicians, health officers and others, a monthly abstract journal known as *Venereal Disease Information.* This publication contains usually one original article on a subject of general interest in connection with the veneral diseases and numerous abstracts from the current literature pertaining to these diseases. In the preparation of this abstract journal more than 350 of the leading medical journals of the world are reviewed and abstracts made of the articles on this subject. The cost of *Venereal Disease Information* is only fifty cents per annum payable in advance to the Superintendent of Documents, Government Printing Office, Washington, D. C. This charge represents only a very small portion of the total expense of preparation, the journal being a contribution of the Public Health Service in its program with state and local health departments directed against venereal diseases.

OBITUARY

WALTER WEBSTER HARRINGTON, M.D.

Dr. Walter W. Harrington, Kansas City, was born in Clarinda, Iowa, August 14, 1879, and died at Research Hospital February 9, 1934, following an abdominal operation.

He was the son of Dr. and Mrs. J. E. Harrington. His parents moved to Kansas City when he was a small boy and he attended the ward and high schools there. He entered the University of Kansas School of Medicine and received his medical degree from that school. He went to Spokane, Washington, and became associated with his uncle, Dr. Elmer Olmstead, where he remained for several years in general practice of medicine and surgery.

Being a Kansas City man he became anxious to return there and on returning specialized in anesthetics and devoted the remainder of his life to that important field of practice. He became very skillful in the use of anesthetics and was called upon by many of the leading medical men. He was careful to watch the heart action and the respiratory functions during all stages of artificial unconsciousness of his patients. He was eminently successful in this field.

During the World War he enlisted in the United States Army and served in France, being promoted to Lieutenant Colonel in the 88th Division.

He was a member of the staffs of Christian, Research, General, Mercy, Trinity and St. Joseph hospitals. Being well qualified in the use of anesthesia his services were daily in demand in that field.

He was a loyal member of organized medicine. He was also a member of the Scottish Rite, Ivanhoe Lodge of Masons, the Shrine, and Sojourners Club, Hill Crest County Club and the Reserve Officers Club.

Dr. Harrington will be greatly missed because he was always good natured, of a quiet retiring disposition and quietly impressive in manner.

The Reverend Earl Blackman conducted the funeral service and the Ivanhoe Masonic Lodge conducted their funeral service in Forest Hill Cemetery where the interment took place. The pallbearers were all physician friends. Members of the Reserve Officers Club attended the funeral as did many Masons and members of the Jackson County Medical Society.

He is survived by his widow, Mrs. Grace Harrington, his mother, an aunt, a sister and a brother, all of whom live in Kansas City.

Hal Foster, M.D.

NOAH A. TESSON, M.D.

Dr. N. A. Tesson was born in Cornelia, Missouri, July 7, 1863, and died February 23, 1934. His father was a merchant in that little village but his son did not like that kind of a life, so after graduating from Warrensburg High School and Teachers' College, he took up newspaper work on the Warrensburg weekly newspaper. At the age of 22 he came to Kansas City and secured a position on the old Kansas City *Times*. He left the newspaper work and got a position at the Kansas City Post Office. While working in the post office he studied medicine at the Kansas City Medical College at Eighth and Penn streets.

He did his hospital work at the old St. Joseph Hospital on the Hill near the college.

He was local examiner for the recruiting of soldiers during the World War and belonged to the Medical Officers Reserve Corps.

His church affiliation was Methodist and he was quite active in church work.

He was a member of the Jackson County Medical Society, State and American Medical associations. He had an extensive practice both in general medicine and surgery.

Dr. Tesson was a genial soul, ready in his smiling manner to tell a joke or a story. His patients loved him because of his geniality and happy personality. They liked him because he always helped them mentally and physically. They had confidence in him because he told them the truth as he saw it.

He married Miss Maud Morrison. There were two children, one of whom survives, Dr. James A. Tesson of this city.

His hobby was hunting and fishing. His last trip after big game was in British Columbia when he was accompanied by his son. They were planning another big hunt this year but while hunting ducks along the Missouri River in 1932 he had a heart attack which put an end to his hunting and his hobby.

Dr. Tesson will be missed by his friends who knew him as he really was. They will miss the happy smile, kindly kidding and story telling. May he have a place in heaven for all time.

A. J. W.—in the Jackson County Medical *Journal*.

RELIEF OF PROSTATIC OBSTRUCTION

Clyde W. Collins, New York (Journal A. M. A., Jan. 13, 1934), emphasizes the facts that prostatic obstruction is relieved through the cysto-urethroscope or through a suprapubic or perineal incision and that it is of vital importance to the patient that the obstruction of the neck of the bladder be removed—if not, the resultant renal insufficiency will probably cause death. It is his present belief that a patient suffering from benign enlargement will be better off with a prostatectomy than with transurethral surgery, in the hands of many urologic surgeons (especially those who perform only the odd transurethral operation). Prostatic bars, obstructing prostatic carcinoma and scars, slight and moderate intra-urethral lateral and median lobes are ideally suited for urethroscopic excision by the trained transurethral surgeon. The markedly enlarged prostate, bulging into the rectum and urethra, had best be removed by prostatectomy. The author reports his observations during the past ten years in relieving ward and private patients of obstructions of the neck of the bladder.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

MISSOURI STATE MEDICAL ASSOCIATION—77TH ANNUAL SESSION

St. Joseph, May 7, 8, 9, 10, 1934

PRELIMINARY PROGRAM

Guests

Bierring, Walter L., Des Moines, Iowa: Coronary Artery Disease.

Ewell, G. H., Madison, Wisconsin: Carcinoma of the Prostate.

Lierle, Dean M., Iowa City, Iowa: Title to be announced.

Musser, John H., New Orleans: The Treatment of Diseases of the Blood.

Swab, Charles M., Omaha, Nebraska: The Ocular Complications of Gonorrhea.

Session on Diseases of the Eye, Ear, Nose and Throat:

Lierle, Dean M., Iowa City: Title to be announced.

Swab, Charles M., Omaha; The Ocular Complications of Gonorrhea.

Withers, Orval R., Kansas City: Nasal Allergy; A Consideration of Clinical Forms and Complications.

Session on Tuberculosis:

Berger, Harry, Kansas City: Treatment of Childhood Tuberculosis.

Henske, Andrew C., and Ehlers, Charles W., St. Louis: The Influence of Pneumothorax Treatment on Prognosis.

Mantz, Herbert L., Kansas City: The Diagnosis of Primary (Childhood) Tuberculosis.

Mudd, James L., St. Louis: The Surgical Aspects of Pulmonary Tuberculosis.

Spector, H. I., St. Louis: A Municipal Program for the Care of Tuberculosis.

Scientific Papers

Allen, Duff S., St. Louis: Thyroidectomy for Organic Heart Disease.

Davis, A. Glenn, Senath: Tertian Malaria With Unusual Type of Skin Manifestations.

Dorsett, E. Lee, St. Louis: Uterine Fibroids.

Emmert, Fred, and Gellhorn, George, St. Louis: Cancer of the Cervix; Its Prevention, Early Recognition and Treatment.

Ernst, Edwin C., St. Louis: Title to be announced.

Gay, Lee Petit, St. Louis: Allergy.

Gradwohl, R. B. H., St. Louis: The Blood Platelet Count and Postoperative Venous Thrombosis.

Howden, T. L., St. Joseph: The Treatment of the Underprivileged Diabetic.

Ketcham, W. M., Kansas City: Practical Points in Endocrine Diagnosis and Treatment for the General Practitioner.

Lyter, J. Curtis, St. Louis: A Working Basis for the Therapeutics of Angina Pectoris.

McCaughan, John M., and Hershey, J. H., St. Louis: Surgery of the Autonomic Nervous System. (1) Effect of Parasympathetic Denervation on the Rectum and Colon (Experimental Megacolon). (2) Effect of Sympathetic and Parasympathetic Denervation on Urinary Bladder.

McIntyre, W. K., St. Louis: Fistula in Ano.

McVay, James R., Kansas City: Diagnosis and Treatment of Perirenal Abscess.

Mastin, E. V., St. Louis: Management of Hyperthyroidism.

Moore, Neil S., St. Louis: Transurethral Prostatotomy.

Myers, W. A., Kansas City: Diaphragmatic Hernia With Special Reference to Esophageal Hiatus Hernia.

Neal, M. Pinson, and Ellis, Max M., Columbia: The Experimental Production of Fat (Pancreatic) Necrosis.

North, E. P., and Jones, Vincent L., St. Louis: What the General Practitioner Should Know About Prevention of Eye Diseases.

Rinkel, Herbert J., Kansas City: Allergy.

Robinson, G. Wilse, Jr., Kansas City: The Neurotic—A Challenge.

Rose, D. K., St. Louis: Bladder Catheterization; Its Benefits and Dangers in Prostatic and Urogenic Obstructions.

Schisler, E. J., St. Louis: Blood Pressure and When It Can Be Called Malignant.

Schwitalla, Rev. Father Alphonse M., St. Louis: Title to be announced.

Smith, Wallis, and Callaway, Guy D., Springfield: Fibrona of the Small Intestine With Intussusception.

Stewart, Wm. J., Columbia: Abduction Traction Treatment of Congenital Dislocated Hips.

Stutsman, David B., St. Louis: Chronic Prostatitis; Effects of Treatment on the Prostatic Urethra With Present Day Fulguration and Resection.

Thompson, F. G., Jr., St. Joseph: Operative Treatment of Esophageal Diverticula.

Welch, Albert S., Kansas City: Amebiasis.

Wilhelmi, Otto, St. Louis: Demonstration and Interpretation of Urographic Shadows.

Table Demonstrations

Campbell, F. B., Kansas City: Practical Points in the Treatment of Rectal Disorders.

Dennie, C. C., Kansas City: Syphilis.

Skinner, E. H., Kansas City: Biopsy.

Williams, D. A., Kansas City: Esophageal Dilatation.

Method of Examination of Eye, Ear, Nose and Throat.

Diphtheria Immunization and Schick Test. Motion Picture.

BUCHANAN COUNTY MEDICAL SOCIETY

The regular meeting of the Buchanan County Medical Society was called to order by the vice president, Dr. Paul Forgrave, in the Missouri Methodist Hospital February 21.

The secretary read a letter from Dr. William J. Stewart, Columbia, director of the State Crippled Children's Service at the Missouri State University, soliciting the cooperation of the members in the care of the indigent crippled children in the territory. After some discussion a motion was made by Dr. J. T. Stamey and seconded by Dr. W. J. Hansen that this matter be laid on the table. The motion carried.

A motion was made by Dr. H. W. Carle and amended by Dr. Charles Greenberg, "That this Society spread on its records its unqualified endorsement of Dr. Daniel Morton for President-Elect of the State Medical Association and work for his election at the next annual meeting which meets in St. Joseph in May. Also that the delegates be instructed to cast their vote for Dr. Morton."

After considerable discussion by Drs. W. T. Elam, J. T. Stamey, A. E. Holley and Charles Greenberg the motion carried.

Revision and bringing up-to-date of the fee bill was brought before the Society by the secretary. After some discussion a motion made by Dr. T. L. Howden, seconded by Dr. Smith, that the economic committee be instructed to revise the fee bill and present it to the Society for its approval at the next meeting carried.

The medical advisory committee reported no new developments since the last meeting and that they have been unable to accomplish anything that would be of any value to the members. Under the present conditions this committee desired to be discharged. A motion was made by Dr. W. H. Minton and seconded by Dr. W. T. Stacy that the committee be discharged. The motion carried.

The projectoscope committee reported that the projectoscope had been received and will be presented at the next meeting.

Robert Carson of the drug department of the Missouri Methodist Hospital spoke on "The Comparative Value of Drugs in the Preoperative Disinfection of the Skin." This paper was discussed at some length by Dr. Waller.

Dr. W. T. Stacy spoke on "Toxemias of Pregnancy." The subject was well presented and was discussed by Drs. W. D. Webb, A. H. Muench, L. H. Fuson, T. L. Howden and C. Wortley, closed by Dr. Stacy.

Meeting of March 7

The Society was called to order in the Missouri Methodist Hospital by the president, Dr. W. C. Proud, at 8 p. m., March 7, with fifty-seven members present.

The application of Dr. Collis I. Roundy for provisional membership was voted on and he was elected.

Dr. Floyd H. Spencer moved that the Society donate $400 to the entertainment committee for the purpose of entertaining the Missouri State Medical Association at the meeting which will be held in St. Joseph in May, $100 of this amount to be given to the Woman's Auxiliary for entertain-

ing the doctors' wives and the remaining $300 for the entertainment of the doctors. The motion was seconded by Dr. L. J. Ferguson and after some discussion passed.

Dr. C. L. Allen and Dr. J. M. McInery, members who have become delinquent with their dues on account of sickness, were voted honorary members of the Society and all past indebtedness cancelled until such time as they regain their health and resume practice.

The following amendment to the by-laws was offered and read by the secretary: "In no instance shall the Society be committed to endorsement of any policy, individual, or measure, except that the motion or resolution for such endorsement be submitted and laid over until the next succeeding regular meeting and after having been published in the *Bulletin* notifying each member that such motion or resolution is to be acted upon at said regular meeting."

The scientific program consisted of an address by Dr. George Hopson on "Vincent's Angina, a Fatal Case." The subject was well delivered and the discussion was instructive. The following discussed the paper: Drs. G. M. Boteler, H. DeLameter, E. M. Shores, Whitsell, W. T. Elam, A. H. Muench, Jacob Geiger, J. I. Byrne and closed by Dr. Hopson.

Emmett F. Cook, M.D., Secretary.

CALDWELL-LIVINGSTON COUNTY MEDICAL SOCIETY

The Caldwell-Livingston County Medical Society met March 12 at the City Hall in Chillicothe. In the absence of the president, Dr. C. H. Wilbur, Polo, the meeting was called to order by the secretary-treasurer, Dr. Donald M. Dowell, Chillicothe.

The following officers were elected for the ensuing year: President, Dr. H. M. Grace, Chillicothe; vice president, Dr. C. L. Woolsey, Braymer; secretary-treasurer, Dr. Donald M. Dowell, Chillicothe; delegates, Drs. A. Collier, Chillicothe, and C. H. Wilbur, Polo; censors, Drs. R. Barney, Chillicothe, and H. H. Patterson, Braymer, and curator, Dr. E. A. B. Thompson, Breckenridge.

The Society went on record as favoring the amendment changing the State dues to $5.00.

Dr. C. H. Brady, Chillicothe, and Dr. F. H. Metz, Chula, were elected to membership in the Society.

The tuberculosis association asked the Medical Society to assist them in making a tuberculosis survey.

Dr. John Ogilvie and Dr. George Knappenberger, Kansas City, who were sent through the courtesy of the Postgraduate Committee of the Missouri State Medical Association, delivered addresses. Dr. Ogilvie spoke on "The Nervous State —Hyperthyroidism" and Dr. Knappenberger's title was "The Nervous State—Hyperemotionalism." These addresses were highly practical and extremely well received.

Donald M. Dowell, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce Building at Cape Girardeau March 12. In the absence of Dr. H. V. Ashley, Cape Girardeau, president, the vice president, Dr. D. I. L. Seabaugh, Jackson, presided. Members present were Drs. B. W. Hays, D. I. L. Seabaugh and D. G. Seibert, Jackson; H. L. Cunningham, M. H. Shelby, N. F. Chostner, W. E. Yount, R. A. Ritter and C. A. W. Zimmermann, Cape Girardeau.

Dr. Zimmermann reported that he had investigated the question of CWA funds in so far as it could interest members of the Society and found nothing in disagreement with the report rendered by Dr. J. H. Cochran, Cape Girardeau, at a previous meeting.

A letter from the secretary of the St. Louis Medical Society commenting on a copy of proposed amendments to the Constitution and By-Laws of the Missouri State Medical Society was read as were the proposed amendments. Dr. H. L. Cunningham moved that the Society go on record as favoring the changes to the Constitution and By-Laws as set forth in the copy submitted. Dr. M. H. Shelby seconded the motion which was carried unanimously.

Dr. N. F. Chostner read a paper on "Diagnosis and Preoperative Treatment of Acute Appendicitis." It was a good paper and elicited considerable discussion.

C. A. W. Zimmermann, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The regular quarterly meeting of the Cass County Medical Society was held at the office of Dr. M. P. Overholser, Harrisonville, at 7:30 p. m., March 8, Dr. T. W. Adair, Archie, president, presiding.

Dr. William Beckman, Strasberg, made the following motion: "In recognition of their long and honorable service to the Missouri State Medical Association and the medical profession, and to their having passed the age of 68 years, I move that the following active members of the Cass County Medical Society, viz., Drs. T. W. Adair, Archie, M. P. Overholser and J. S. Triplett, Harrisonville, be placed on the honor roll of the Missouri State Medical Association." The motion was adopted by the Society.

Resolutions on the death of Dr. H. A. Brierly, Peculiar, were read by the secretary and adopted by the Society. Dr. B. O. Hartwell, Drexel, moved that these resolutions and an obituary of Dr. Brierly be sent to The Journal of the Missouri State Medical Association. The motion was adopted.

Dr. Frank B. Ellis, Garden City, read a paper on "Surgery as an Aid in the Treatment of Pulmonary Tuberculosis."

Dr. M. P. Overholser, Harrisonville, read a paper on "A Compilation of Symptoms Caused by an Overproduction of Insulin by the Islands of Langerhans of the Pancreas and Treatment, as Reported by Reliable Physicians of the United States."

These splendid papers were thoroughly and generally discussed by members and visitors.

Drs. B. B. Tout, Archie, and R. M. Miller, Belton, of the Cass County Medical Society, and L. J. Schofield, Warensburg, of the Johnson County Medical Society, were selected as contributors to the program for the June 14 meeting.

Members present were: Drs. T. W. Adair, Archie; Wm. Beckman, Strasburg; F. B. Ellis, Garden City; B. O. Hartwell, Drexel; R. M. Miller, Belton; M. P. Overholser and J. S. Triplett, Harrisonville. Visitors present were: Drs. J. T. Anderson and L. J. Schofield, Warrensburg;

W. F. Chaffin, Raymore; A. D. Johnston, Belton, and Dr. Anderson, D.D.S., Garden City

J. S. Triplett, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met February 13 with fourteen members present.

The secretary reported a communication from Dr. E. J. Goodwin concerning FERA fees.

A motion was made, seconded and carried that the vice president, Dr. W. S. Loveland, Joplin, get estimates for the construction of a double roentgen ray view box.

Dr. Loveland reported a case and showed roentgen rays of a tortuous rectum. The patient suffers from sudden and severe attacks of pain in the rectum relieved by passages of gas. Pain frequently requires morphia. Discussion by Drs. B. E. DeTarr and J. W. Barson, Joplin.

Drs. J. W. Hardy and B E. DeTar, Joplin, reported a case of an obscure tumor of the spleen which was removed at operation. The specimen was shown. Discussion was general. A report of the pathological section will be made at a subsequent meeting.

Dr. H. L. Wilbur, Joplin, reported a case of a ruptured ectopic pregnancy associated with a large ovarian cyst. A long obliterative type appendix was also present.

Drs. J. W. Barson, Joplin, and J. E. Douglass, Webb City, reported a case of pulmonary tuberculosis with a rather unusual course.

Dr. F. E. Rosenthall, Joplin, reported the appearance of the eye grounds in lymphatic leukemia. A search of the literature showed that 60 per cent of myeloid and lymphatic leukemias show characteristic eye ground changes, hemorrhages, exudates, tortuous vessels and edema of the nerve center.

Dr. J. L. Sims, Joplin, reported a case of latent neurosyphilis that was perfectly healthy up to within three months before his death.

Meeting of March 7

The Society met at Joplin March 7 with seventeen members present.

The committee on arrangements for the meeting to be held at Fort Smith, Arkansas, asked for an expression from the members as to how many will go and whether they would rather drive their own cars or go on the bus. The president instructed the chairman of the committee to see the members individually as to their wishes.

It was moved and seconded that an Eastman roentgen ray view box be purchased and that Dr. J. E. Douglass, Webb City, and Dr. S. A. Grantham, Joplin, be appointed a committee to buy the box. It was voted that after the purchase of the box it will not be loaned to nonmedical bodies.

A motion was made and seconded and carried that the secretary arrange for the moving of the Society's safe from the old meeting place to the Memorial Hall.

Dr. O. T. Blanke, Joplin, reported a case of leukopenia as yet of undetermined origin.

Dr. J. W. Barson, Joplin, reported a case and showed roentgen rays of probable aortic aneurysm.

Dr. J. E. Douglass, Webb City, discussed cases and displayed roentgen rays from the county tuberculosis clinic. Discussion was general.

Paul W. Walker, M.D., Secretary.

LINN COUNTY MEDICAL SOCIETY

The Linn County Medical Society met in the Commercial Hotel in Linneus February 22.

A dinner sponsored by Drs. E. F. Weir, Meadville; J. R. Dixon, Linneus, and F. W. Burke, Laclede, at which the members of the Woman's Auxiliary were guests preceded the scientific program. Dr. Ben Putnam, Marceline, son of the late Dr. Ola Putnam, was a guest.

Drs. C. C. Conover and T. H. Aschmann, Kansas City, were guest speakers. Dr. Conover spoke on "The Circulation of the Myocardium in Health and Disease," and Dr. Aschmann's topic was "Causes and Treatment of Sterility." Both discourses were well presented and highly instructive.

The members present were Drs. F. W. Burke, Laclede; E. F. Weir, Meadville; J. R. Dixon, Linneus; J. L. Evans, S. T. Brownfield, Roy Haley and E. D. Standly, Brookfield; W. W. Ellis and M. L. Diekroeger, Marceline.

M. L. Diekroeger, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met at the St. Francis Hospital, Maryville, January 3. The meeting was called to order by the president, Dr. C. D. Humberd, Barnard.

Members present were Drs. B. F. Byland, Burlington Junction; C. W. Kirk, Hopkins; C. D. Humberd, Barnard; J. M. Broyles, Conception Junction; C. T. Bell, K. C. Cummins, L. E. Egley, W. R. Jackson, C. V. Martin, R. C. Person and W. M. Wallis, Jr., Maryville. Guests present were Drs. E. H. Schorer and James R. McVay, Kansas City; F. R. Anthony, Maryville; Earl Braniger and Jesse Miller, Maryville, dentists; Ed. Miller, Hopkins, dentist, and two sisters from the hospital staff. Drs. Schorer and McVay were guests through the courtesy of the Postgraduate Committee of the State Medical Association.

Dr. C. T. Bell, Maryville, presented an interesting case of thrombo-endarteritis obliterans with dry gangrene of both lower extremities extending midway between the knees and hips. The case was demonstrated in one of the surgical rooms. The case was discussed by Drs. Byland, Martin, Wallis and Egley.

Dr. E. H. Schorer, Kansas City, presented an interesting talk on "The Routine of Feeding and the Fundamentals of Foods."

Dr. James R. McVay, Kansas City, gave an interesting report on "Perinephritis Abscesses," dealing with their etiology, symptoms, rarity, difficulty of diagnosis and treatment. His lecture was illustrated by lantern slides.

Meeting of February 7

The Society met at the St. Francis Hospital, Maryville, with Dr. C. D. Humberd, Barnard, president, in the chair.

Members present were Drs. B. F. Byland, Burlington Junction; C. D. Humberd, Barnard; K. C. Cummins, C. T. Bell, Hiram Day, L. E. Dean, L. E. Egley, W. R. Jackson, C. V. Martin, R. C. Person, Jack Rowlett and W. M. Wallis, Jr., Maryville. Guests present were Drs. E. P. Heller and E. Kip Robinson, Kansas City; F. R. Anthony, Maryville; Earl Braniger, Jesse Miller and H. L. Stinson, Maryville, dentists.

The secretary reported a conversation with

Dr. Floyd Spencer, St. Joseph, regarding a public meeting at the college auditorium with lecturers from the Cancer Committee of the State Association. It was decided that as the lecture room was too small for a public meeting and the town people and the college students will not attend meetings of this type that the Society did not feel it advisable to sponsor any public meeting at this time. Two clinics and lectures which the Society sponsored in the last few months were unsuccessful for these reasons. Dr. Bell moved that the secretary write Dr. Spencer and arrange for speakers from the Cancer Committee to meet with the Nodaway County Medical Society at the next regular meeting, March 7. Motion seconded by Dr. Hiram Day and carried.

The scientific program for the evening was presented by the guests from Kansas City who had come through the courtesy of the Postgraduate Committee of the Missouri State Medical Association.

Dr. E. P. Heller, Kansas City, presented an interesting paper on "The Modern Treatment of Fracture." His lecture was illustrated by a carefully chosen series of lantern slides.

Dr. E. Kip Robinson, Kansas City, gave an interesting paper on "Avoiding Complications in Gynecological Radium Therapy," which was also illustrated by lantern slides.

The essays were discussed by Drs. C. V. Martin, L. E. Egley, C. T. Bell, W. M. Wallis, C. D. Humberd and L. E. Dean.

W. R. Jackson, M.D., Secretary.

RAY COUNTY MEDICAL SOCIETY

The Ray County Medical Society met at Ogg's Cafe in Richmond February 20 with fourteen members of the Ray and Lafayette county societies present.

Dr. T. F. Cook, Richmond, chairman of the program committee, reported that he was in communication with Dr. Floyd Spencer, St. Joseph, of the State Association Cancer Committee, and that a combined lay and professional cancer meeting was tentatively arranged for the Society meeting in March.

Dr. W. A. Braecklein, Higginsville, gave a short, instructive and helpful talk on ethics among the men in the profession.

Dr. Charles B. Shotwell, Richmond, was elected to honorary membership in the Society.

Dr. Ralph E. Mueller, Kansas City, presented an interesting and educational two hour orthopedic clinic on various types of common fractures. His talk was illustrated with numerous roentgen ray plates and splints and he presented about fifteen patients from his private practice. The clinic was informal and all entered into the discussions.

Following the program a Dutch lunch was enjoyed by all.

I. E. Goldberg, M.D., Secretary.

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met at the office of Dr. J. B. Bridges, Downing, February 6. The following were present: Drs. J. H. Keller and A. J. Drake, Lancaster; Ida M. Nulton, H. E. Gerwig and J. B. Bridges, Downing; L. Noe, Queen City, a visitor. The president, Dr. Nulton, presided.

The following resolution was unanimously adopted:

Resolved, That we recommend and indorse the program and fee schedule as outlined by the Missouri Relief and Reconstruction Commission operating under the Federal Commission, and that it be adopted as outlined in their program and instructions.

J. B. Bridges, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met in Mountain Grove February 22 with the following physicians present: Drs. A. H. Thornburgh and L. E. Toney, West Plains; H. G. Frame, R. A. Ryan, R. W. Denny, C. T. Greene, A. C. Ames and J. M. Hubbard, Mountain View; Frank Hyde and W. T Eudy, Eminence; L. T. Van Noy, Norwood; L. M. Edens, Cabool; R. M. Norman, Ava; and Earl C. Padgett and Robert Koritschoner, Kansas City, who were sent by the Committee on Cancer of the Missouri State Medical Association.

The program started at 2 p. m. with a public meeting for the laity at the Trinity M. E. Church at which there were about 100 interested listeners to the speakers from Kansas City. They stressed the painlessness and apparent harmlessness of the first stages of cancer; the great importance of treatment early when a cure may be reasonably expected; that no so-called cancer doctors possess superior knowledge above the regular medical profession; that the interest of the patient will be best served by consulting the family physician and heeding his advice. Literature was distributed to all present still further emphasizing these points. After the lectures about twenty-five patients with cancer or suspected cancer were examined and advised and numerous questions were asked and answered.

At 6 p. m. the physicians assembled at Wooley's Cafe for dinner after which they returned to the church for the scientific session. The speakers stressed the futility of depending upon roentgen ray or radium treatment for deep seated cancer while admitting their usefulness in superficial lesions saying that a large proportion of patients with supposedly cured cancer dying later of some supposedly dissociated malady, do really die of a metastatic cancerous condition. Lantern slides were shown to prove this contention.

After the departure of the Kansas City visitors and in the absence of the president, Dr. J. C. B. Davis, Willow Springs, the secretary, called the meeting to order and read the minutes of the last meeting and a financial statement.

At the request of Drs. Hyde and Eudy, president and secretary of the Carter-Shannon County Medical Society, it was voted to take that Society into the union with the understanding that their two counties shall retain their present representation in the State Medical Association.

It was voted to hold a meeting at Round Springs State Park near Eminence on July 26 in the nature of a picnic, the families of the physicians to be guests.

The meeting adjourned at 9 p. m. to meet at Houston at noon, April 26, for dinner and an afternoon meeting.

A. C. Ames, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

12th Annual Meeting, Cleveland, June 11-15, 1934

President, Mrs. James Blake, Hopkins, Minnesota.

President-Elect, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

10th Annual Meeting, St. Joseph, May 8-9, 1934

President, Mrs. Hudson Talbott, St. Louis.

President-Elect, Mrs. William H. Goodson, Liberty.

Advisory Counsel, Dr. J. F. Harrison, Mexico.

News Notes

Looking forward to our annual convention at St. Joseph we note that the Buchanan County Auxiliary is busy with preparations for that event. Mrs. C. H. Werner is general chairman of arrangements, and Mrs. A. B. McGlothlan is vice chairman. Auxiliary meetings will be held in the ample and comfortable auditorium of the Y. W. C. A. Building.

Chairmen of necessary committees have been named. A much fuller account of plans, and a complete program of the Convention will appear in the April Quarterly *Bulletin.*

At the January meeting of the Boone County Medical Society the president, Mrs. M. Pinson Neal, Columbia, reviewed "A Half-Century of Medical Progress." At the February meeting Mrs. C. M. Snead, Columbia, had charge of the program with the subject "Parliamentary Law." The Auxiliary's public relations meeting was held February 15 at 3 o'clock in the chapel of the Missouri Methodist Home, Columbia, and was addressed by Dr. R. L. Rector, Evanston, Illinois, representative in ten states for the American Society for the Control of Cancer. This meeting and others following it in a two-day program were arranged by Dr. M. Pinson Neal, in charge of the national society's work in twenty-one central Missouri counties. The subject at this first meeting was "How Women Can Aid in Cancer Control." All women in Columbia and vicinity were invited. The Boone County Auxiliary did effective work in securing newspaper publicity for this course of lectures and personally stimulating the excellent attendance.

The Cass County Medical Society and its Auxiliary were saddened by the unexpected death, March 1, of Dr. H. A. Brierly, Peculiar. For the last two years Mrs. Brierly has been the honored and loved president of the Auxiliary, whose members are only a few of the large circle of her sympathetic friends.

At the regular meeting of the Cass County Auxiliary, March 8, the officers for the coming year were elected. Mrs. T. W. Adair, Archie, will succeed Mrs. Brierly as president. Mrs. David S. Long, Harrisonville, in charge of the essay contest, reported thirty-five essays submitted. The Auxiliary is distributing through Mrs. Long $10.00 in prizes in connection with this contest.

A friend of the Cape Girardeau County Auxiliary who desires that her name remain unknown is supplementing the prizes in the essay contest in that county this year as follows: In addition to the county Auxiliary prizes "in each school in which more than one contestant enters the pupil who has the best essay will receive an award of $1.00."

The Clay County Medical Society and Auxiliary met together for dinner at Snapp's Hotel, Excelsior Springs, at 6:30 p. m., February 27. Following the dinner the Medical Society held its scientific session at the Veterans Hospital. The meeting of the Auxiliary was held in the Recreation Hall of the Veterans Hospital. The address of the evening was made by Mrs. W. H. Goodson, Liberty, State Auxiliary president-elect. A moving picture entertainment closed the program.

The Gentry County Auxiliary assisted in bringing out a large attendance at the public meeting on cancer in Albany, February 14, which was addressed by Drs. A. B. McGlothlan, Floyd H. Spencer, H. W. Carle and W. T. Elam, St. Joseph.

The programs provided by the Greene County Auxiliary for January, February and March included "40-Looking Forward," "The Dog's Gift to the Relief of Human Suffering" and "New Discoveries in Medicine." Mrs. W. S. Sewell, Mrs. U. J. Busiek and Mrs. J. P. Ferguson, Springfield, were the leaders, respectively, of these topics.

At its business meeting March 31, the Woman's Auxiliary to the Jasper County Medical Society elected the following officers: Mrs. R. M. James, president; Mrs. Paul Walker and Mrs. J. M. Gray, vice presidents; Mrs. H. A. Leaming, secretary; Mrs. S. H. Miller, treasurer. This meeting, presided over by the outgoing president, Mrs. B. A. Dumbauld, followed a luncheon at the Woman's Club in Joplin and was attended by seventeen members.

In addition to their business meetings in January and February the programs of the Johnson County Auxiliary have included a review of "How Do You Spend Your Spare Time?" given by Mrs. Edith Bolton at the home of Mrs. O. B. Hall, Warrensburg, and of "Mystery, Magic and Medicine" given by Mrs. John A. Powers at the home of Mrs. J. W. Bolton. Mrs. W. E. Johnson, Warrensburg, is a new member of this Auxiliary.

The Lafayette County Auxiliary's public relations meeting was held in Higginsville, February 15 A large attendance of health-interested persons from all parts of the county were present to hear Dr. Earl Padgett, Kansas City, speak on "Reasons for Cancer Instruction to the Laity," and Dr. E. Kip Robinson, Kansas City, on "Cancer, a Community Health Problem." The Auxiliary was proud of the large audience, of the addresses given and of the valuable discussion following.

At the public relations meeting of the St. Louis County Auxiliary held February 15 in the lecture hall of the nurses' home of the County Hospital at Clayton, the following topics and speakers were heard by a large audience: "Preventable Eye Diseases" by Dr. Emmett P. North, St. Louis; "Causes of Amebic Dysentery," Dr. R. B. H. Gradwohl, St. Louis; "The County Hospital, the Health Department, the Free Clinic and the Taxpayer," Dr. E. O. Breckenridge, Maplewood.

The St. Louis Auxiliary program provided for the annual presentation, February 17, of the delightful "Chauve Souris" entertainment under the direction of Mrs. Frank L. Morse.

In January came the review of "Kristin Lavransdatter" given by Mrs. Sophia Rover Barth, and in March a talk on "India" by Mrs. M. A. Casberg.

MISCELLANY

MEMORIAL SERVICE

DR. HARVEY GILMER MUDD

At high noon, on January 10, a memorial service for Dr. Harvey Gilmer Mudd, who died August 16, 1933, was held at Christ Church Cathedral of St. Louis, Missouri, under the auspices of the directors of St. Luke's Hospital. The church was filled to overflowing with a representative congregation of friends, grateful patients and physicians; the directors, the medical staff, nurses in uniform of St. Luke's Hospital, and men and women of distinction from every walk of life, all assembled to render homage and devout affection to the beloved physician. The service was simple, deeply impressive and without exception the most beautiful, dignified and inspiring ever held for any physician in the history of St. Louis.

Addresses delivered upon this occasion by Bishop William Scarlett and Dr. M. B. Clopton follow:

BISHOP WILLIAM SCARLETT

Some years ago, on giving up my residence in Arizona, the man generally considered to be the most useful and valuable citizen of the state said to me, "There is a great man living in St. Louis whom I want you to meet. He is Dr. Mudd. About fifteen years ago my immediate future seemed precarious in the extreme, but I was finally directed to St. Louis and to Dr. Mudd. Not only did his skill save my life, and I have been a well man ever since, but almost beyond that was the fact that I met a real man and made a real friend whom I love. And after the passing of all these years, he still remains one of my closest friends."

One wonders how many times such a story could be multiplied if the whole were known; how many, many lives there are whom Harvey Mudd, as he moved among us, has helped by his skill, by his sympathy, by his great kindness, by his ready and affectionate friendship. To judge by the many hundreds of letters which have come to his family from the four corners of our country and from beyond its borders, to remember the far greater number who at such a time remain inarticulate though their gratitude is none the less sincere, there is a multitude who are grateful for the life of this highly useful man who gave himself so unstintedly to others.

If Dr. Mudd ever thought about such things this must have been the source, I will not say of contentment but rather of great satisfaction to him. And what a marvelous opportunity a well-rounded physician has! There is nothing greater. He has at hand all the materials for a highly satisfying life for he combines the satisfaction of the intellectual pursuit of science and truth with the other satisfaction of direct, intimate, personal service to humanity, service to individual men and women and children. And men's hearts and inner lives are open to him as almost to no one else. And the opportunity is his, if he is equipped for it, of ministering to the whole personality of a man as well as to his body.

Harvey Mudd was so equipped. In addition to his extraordinary skill as a surgeon, there was also an unusual personality. He had a real gift for friendship. He had a genuine liking for people and so people responded to him in kind. He had broad sympathies, exceeding great kindness, and his friendships were many and varied because he brought to bear on friendship a rich and many sided personality. One cannot begin to catalogue the facets of that personality, but we remember his love of animals, especially dogs, particularly his dog; his genuine love of sports; his appreciation of Nature—only last night a friend of his was telling me that this summer at Rye Beach shortly before his death Dr. Mudd approached him saying, "If you will get up early in the morning, quite early, and come with me, we may have a great experience." "Of what sort?" said his friend. "Why, I am told that if we arise shortly after dawn and go deep into the woods at a certain place it may just be that we shall hear a hermit thrush, the finest songster on the continent"—and at my cabin on the rim of the Grand Canyon of Arizona I have seen him moved almost as much by the discovery of a flower which was new to him as he was by that titanic abyss itself with its majesty and deep rich colors and ever changing beauty; his love of music and of all things beautiful. Indeed we might almost say of him that "nothing human was alien" to his interests. So, many and varied were his friendships because he met people on so many fronts. And in reading the letters which have come to his family one is struck by this fact: That beyond the tribute to him as a great surgeon, and that indeed he was, is the tribute to him as a friend, and the sense of personal loss dominates the letters. From the nurses of St. Luke's Hospital, from his fellow physicians here, from people all over the world comes the same word: "I have lost a good friend, one on whom I could count."

And there was another factor in his life which influenced him profoundly about which he was reticent. Some centuries ago religion and medicine were one, indeed all branches of knowledge were bound together in one grand synthesis, with one central controlling principle. It was a daring conception, but it had to be shattered because it was premature. The state of knowledge did not allow for such a synthesis. It was necessary that each branch of knowledge be free, free from taboos, free from traditions however sacred, in order to pursue for itself truth as it saw it. And great has been the benefit which has accrued to humanity because of this separation, and in the field of medicine humanity has been relieved of a large part of the burden of pain and fear due to this independent research. On the other hand, it has en-

tailed a great loss. Life has lost its sense of unity, life has lost its controlling unity. And that is a very great loss which affects us profoundly in every field. It may be that the state of knowledge sometime in the future will once again allow of synthesis, and indeed there seem to be some faint indications on the horizon that such a time is approaching. Then once more we shall see life steadily and see it whole.

But this synthesis is never wholly lost. It lives on in the hearts of innumerable men who while pursuing their professions at the same time are sensitive to a wider spiritual environment. And that was true of Dr. Mudd, and deep in his heart was that simplicity which is at the center of all High Religion. Again and again I have heard him tell the story of one patient who, facing a serious operation, before the anesthetic was administered gathered doctor and assistants and nurses together for a prayer for them and for himself, so simply moving that Dr. Mudd was almost unnerved. He always spoke of it with profound emotion.

He told me of his interest in and friendship for an eminent biologist in the East to whom he was attracted first of all because he recognized in that man not only great eminence in his own field of science but also sensed in him that same appreciation of spiritual values which he himself possessed. He encouraged his son to see as much of that professor as possible, and to hear him on every occasion.

And not long ago in his own home he pulled out an old manuscript, a well worn article clipped from a popular magazine, showing much usage, which he greatly cherished. The title of it was "A Roughneck's Religion" and it began with an incident at the time of Lindbergh's flight across the Atlantic. On that same evening was a prize fight in New York City which had attracted many thousands of spectators. Before the battle began, a leather lunged announcer stepped into the ring and securing silence he said, "I don't know what you all believe in, or whether you believe in anything at all, and I don't care. But Slim Lindbergh is in the air somewhere between New York and Paris, France. I know you are all pulling for him to come through safely. And I now ask you to help him in the only way you can. I ask you to rise and stand for one moment in silent prayer for him." And the great audience arose without any hesitation, without a single smile, and stood for a minute with bowed heads asking God's help for the brave boy out somewhere over the Atlantic. And Dr. Mudd's husky voice grew huskier as he read it.

"Not all men die," writes one of the most famous of American surgeons to Mrs. Mudd, "and Harvey Mudd is one of those chosen spirits who will survive in the hearts of men, women, and children who have been blessed by his presence and his noble deeds."

The Third Gospel was written by a Doctor. In some ways it is the most interesting of all the Gospels. Certainly it is the most human. From the rich materials in the life of Jesus, he selects those which would most appeal to a doctor, which would most appeal to Dr. Mudd. It is in the Third Gospel that we find the story of the Good Samaritan, the foreigner who picked up a bruised man lying by the road whom Priest and Levite had passed by, who rescued the helpless man and bound up his wounds and took him to an inn and had him cared for. It is in the Third Gospel that we find that wistful story of the Prodigal Son, of the boy off in a far country who turned toward home, and of the Father waiting for him who asked him no questions. In one of St. Paul's epistles the author of this Gospel is referred to as "Luke, the beloved physician." And perhaps beyond all the titles to which he is entitled by reason of his high standing in his profession, the one he would cherish most and the one he most richly deserves is the same—Harvey Gilmer Mudd, "beloved physician."

MALVERN B. CLOPTON, M.D.

We can measure a man's life by his achievements and by the means he used to reach his goal, so, Dr. Mudd, who became one of our truly great practitioners of surgery and who for years stood out as representing the finest in that great healing art, arrived at his high position by consistently applying with judgment and skill all the best that the science of modern medicine had to offer, and with all modesty advanced with sure and certain steps until he reached the pinnacle recognized by all.

He probably had little difficulty in making the choice of his profession because there was a traditional urge toward medicine in his family where several members had reached signally outstanding positions, and he set about to prepare himself for his life work by conscientiously seeking all that he could obtain through a thorough education. If we should select one characteristic of the man more outstanding than any other it would be his conscientiousness which influenced every action from early life and brought to him his great success, all his other delightful and noble attributes adorning this fundamental, his charm, his industry, his knowledge, his skill, were handmaidens of the worthwhileness of the man.

He came into medicine at the beginning of an era that was to see a complete revolution in practice. Anesthetics had been known a few decades, but bacteria were just beginning to be recognized as the arch enemies of man and their role in vitiating good surgery was just beginning to be understood and methods of combating their deadly effects were being formulated. So he saw as a young man the start of modern surgery and eagerly sought all knowledge bearing on its onward march. He eagerly grasped the new finds and put them in practice and kept abreast of the tide that swept us into the great modern concept of surgery with all the new fields opened to us. He not only took advantage of the best that his local schools offered in an academic and a medical way but he spent several years in famous European clinics where he saw the greatest living exponents of the newer thoughts and methods, so, that on his return to St. Louis he was ready to join and work with his brother, Henry, then a leader in medicine and surgery. While still a medical student, and for a short time after graduation, he had been thrown with his distinguished uncle, John T. Hodgen, who was and continued to be a glorious inspiration and a beacon to guide his career; and in much the same way his brother bore no small part in his development, and then the two brothers, as partners, kept the tradition and stood for the finest in medicine and surgery.

Shortly after St. Luke's was formed Dr. Hodgen became the surgeon in chief and together with

the leaders of the profession nurtured the hospital through its various stages and eventually it evolved into the institution of which we are now so proud. To see St. Luke's advance to a position where it could do the most good was a responsibility that was focused particularly on Dr. Harvey Mudd when he succeeded Dr. Henry Mudd as chief of staff, who had succeeded Dr. Hodgen, and from that day the hospital was his chief concern and greatest delight. He saw it transformed from a small institution to its present importance, and nothing happened that he wasn't party to if he hadn't originated it. After the death of Henry Mudd he confined his practice exclusively to surgery, and he was a general surgeon par excellence. Earlier he had made special efforts in genito-urinary surgery and had made a name in this field, but it was in general surgery that he achieved his preeminence and his accomplishments put St. Luke's in the fine place it holds in surgery today.

Dr. Mudd was not only a student, but he had a background of experience that made it possible for him to dip into a cistern of knowledge whenever he had need. His experience in medicine, his knowledge of disease, his careful consideration of all the factors entering into a diagnosis, his rare judgment, indicated the proper course to pursue and his faultless honesty and deep human interest made his decision so conclusive that it was rare to find a consultant in disagreement or a patient failing to take his advice. His faithfulness to the highest principles and his solicitous concern for those who were ill raised his practice of surgery to a splendid art and a high science. He was skillful and daring as an operator, never fearful of doing what had to be done but never subjecting the patient to unnecessary risk to accomplish a brilliant piece of surgery.

The high regard in which his professional confreres held him is testified to by his election to many societies of distinguished men. His genius for friendship, his deep sympathy for those who sought his help have made for him countless hosts of friends and thousands can speak their gratitude from personal experiences of his skill and solicitude.

Of equal importance with his surgery the nursing at the hospital held his interest. He saw the trained nurse evolve from the uneducated attendant to our modern skillful graduate, and no development gave him greater joy. He was the nurse's friend and champion, and from students in training to graduates of long standing they brought their problems to him and gave him their affection and loyalty, always looking upon him as their ideal leader.

Throughout his life he kept a youthful spirit and his ability to make and hold friends amounted to genius, and his loyalty to his friends was so outspoken that it brooked no gainsaying, never a fair weather friend, in fact when storms came he stayed closer to give help and encouragement. His joy in genial companionship had a charm that was contagious and he was sought by all who loved life and the simple pleasures of true fellowship.

St. Luke's has lost her greatest friend who gave not only his skill and knowledge but was the one who helped give the hospital one of its greatest assets, its friendliness. As a director, as chief of staff, as chief surgeon, as a friend to the nurses, as a man, we miss and mourn him.—From the Weekly *Bulletin* of the St. Louis Medical Society.

PROPOSED AMENDMENTS TO CONSTITUTION AND BY-LAWS

The following proposed amendments to the Constitution and By-Laws of the State Association have been submitted by the St. Louis Medical Society. We publish them for the information of the members together with comments by Secretary Goodwin.

Amendments to the Constitution

Amend Article 5 by striking out "(1)" and the words "and (2) the officers of the Association enumerated in Section 1 of Article 9 of this Constitution," and by adding two new sections so that when amended said Article shall read:

Article 5—House of Delegates

Section 1. The House of Delegates shall be the legislative body of the Association and shall consist of delegates elected by the component county societies.

(Comment) This amendment would deprive the House of Delegates of the sympathetic cooperation of the officers. Some delegates have attended no sessions for years previous to their election as delegates, hence they know little or nothing about the internal affairs of the Association. Officers and Councilors attend year after year and work unselfishly for the best interests of the Association.

Section 2. The House of Delegates shall meet for the purpose of organization at the call of the president of the Association on the first day of the annual meeting.

(Comment) This clause has no place in the Constitution. The By-Laws should and do provide for this action.

Section 3. The officers of the House of Delegates shall be a Speaker and a Vice Speaker elected by the delegates from their body, and the secretary of the Missouri State Medical Association who shall be without vote.

(Comment) A Speaker and a Vice Speaker are utterly needless appendages in our organization. The President with the assistance of three Vice Presidents has ample time to discharge all the duties imposed upon him.

Amend Section 1, Article 9 by inserting after the word "Treasurer" the words "Speaker and Vice Speaker of the House of Delegates," so that when amended said Section 1 shall read:

Section 1. The officers of this Association shall be a President, a President-elect, three Vice President, a Secretary, a Treasurer, a Speaker and Vice Speaker of the House of Delegates, and twenty-nine Councilors, more or less as shall be determined by the House of Delegates from time to time.

(Comment) We repeat that a Speaker and a Vice Speaker of the House of Delegates are utterly needless in our organization.

Amend Section 2, Article 9 by inserting after the word "annually" the words "by the House of Delegates"; by inserting after the word "year" in the fourth line the words "by vote of the members of the component county societies of the Councilor Districts" and by striking out the words "the secretary and the treasurer shall be elected by the Council," so that said Section 2, Article 9 shall read:

Section 2. The officers except the Councilors shall be elected annually by the House of Delegates. The terms of the Councilors shall be for two years; one half the members of the Council shall be elected each year by vote of the members of the component county societies of the Councilor Districts. All these officers shall serve until their successors are elected and installed.

(Comment) This clause would throw the election of Councilors into the counties composing the Districts. The objection to it is that it opens the door to political logrolling and may easily result in discord and disharmony among the members of the District. To be elected a Councilor is an honor providing it comes without solicitation as it does under our present system.

Amend Article 13 by striking out the entire section and inserting in lieu thereof a new section to read:

Article 13

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present at any Annual Session provided that such proposed amendment shall have been presented in open meeting at the previous Annual Session, or by mail to each component society at least two months before any Annual Session, and by publication in two issues of the Missouri State Medical Journal before the annual meeting at which the proposed amendment is to be considered.

(Comment) Our Constitution and By-Laws are based upon the Constitution and By-Laws of the American Medical Association so that there shall be no conflict with the

organic law of the parent body. The Constitution of the American Medical Association requires that any amendment to the Constitution lay on the table one year before the amendment can be acted upon. The present provision in our State Association Constitution therefore should not be disturbed.

Amendments to the By-Laws

Amend Section 3, Chapter 3 by striking out the word "forty" and inserting the word "twenty," so that when amended said Section shall read:

Section 3. Twenty delegates shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Association.

(Comment) To reduce the quorum of the House from 40 to 20 members would make it easy for a small minority to manipulate the affairs of the Association to the detriment of the majority and the absentees.

Amend Section 4, Chapter 3 by striking out the word "president" and inserting the word "speaker," and by inserting after the word "resolutions" the words "on a majority vote of the House of Delegates," so that when amended said Section 4 shall read:

Section 4. From among members of the House of Delegates the Speaker shall appoint Reference Committees to which reports and resolutions on a majority vote of the House of Delegates shall be referred as follows:

Reference Committee on Amendments to the Constitution and By-Laws.

Reference Committee on Resolutions.

Reference Committee on Miscellaneous Affairs.

He shall also appoint a Committee on Credentials and such other committees as may be considered by him to be necessary.

(Comment) This amendment would deprive the President of two of his most precious prerogatives, i. e., (1) to preside at the sessions of both the House and the General Meetings; (2) to appoint upon the Nominating Committee members who are in sympathy with his administrative activities and trustworthy leaders in the affairs of the organization. It would reduce the President to a figurehead and violate that portion of the By-Laws which stipulates that he "shall be the real head of the profession during his term of office."

The clause requiring that reports and resolutions be referred to Reference Committees by a majority vote of the House of Delegates would clutter up the By-Laws with useless regulations and waste the time of the House. Under our present By-Law any member has the right to suggest that a question has been wrongly referred and request the President to rerefer it or even to move that the matter be referred to another committee.

Amend Section 9, Chapter 3 bv striking out the present Section 9 and inserting a new Section to read:

Section 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the ensuing year which shall have been prepared by the Council and submitted to the component county societies before January 31 of each year for the information and instructions of the component county societies to their delegates at the next annual meeting.

(Comment) The objection to this clause is that it proposes an impossibility. The auditors cannot begin to audit the books until after the expiration of the year and it would be impossible to complete the audit and make the report by January 20 which is the date upon which we go to press with The Journal for February.

Amend Section 1, Chapter 4 bv striking out the word "President" and inserting the words "House of Delegates" in the first line and the words "Each candidate for Councilor must be a resident of the district for which he is nominated" and by striking out the last sentence "On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House," so that when amended said Section shall read:

Section 1. The House of Delegates, on the first day of the Annual Sessison, shall select a committee on nominations consisting of ten delegates, no two of whom shall be from the same councilor district. The Committee on nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session, excepting the President-elect who shall be nominated from the floor of the House of Delegates.

(Comment) This also would deprive the President of a prerogative which should be his and his only by virtue of his leadership and the confidence reposed in him when he was elected President. It would open the way for political logrolling which has no place in a scientific body. Furthermore, it would waste the time of the House in fruitless nominations, discussions and balloting.

Amend Sections 5 and 6 of Chapter 4 by eliminating entirely said Sections 5 and 6.

Sections 5 and 6 of Chapter 4 read:

"Sec. 5. No person known to have solicited votes for or sought any office within the gift of this Association shall be eligible for any office for two years.

"Sec. 6. Delegates shall not be eligible for election to any of the offices named in the Constitution, except that of Councilor."

(Comment) The purpose of these two clauses is to make members elected to office feel that an honor has been conferred upon them. By rescinding these two clauses the scramble for office could easily become a free for all fight debasing and degrading to the participants and disgraceful to the House of Delegates. On this point the House of Delegates of the American Medical Association has a standing rule as follows:

"*Resolved,* That it is the sense of the House of Delegates of the American Medical Association that the solicitation of votes for office is not in keeping with the dignity of the medical professon, nor in harmony with the spirit of this Associaton, and that such solicitation shall be considered a disqualification for election to any office in the gift of the Association."

Amend Section 1, Chapter 5 by striking out the words "and of the House of Delegates," so that when amended said Section shall read:

Section 1. The President shall preside at all meetings of the Association; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies, and in making their work more practical and useful.

(Comment) This amendment deprives the President of one more of the prerogatives which should be his; namely, presiding at the meetings of the Houes of Delegates. This amendment must be laid on the table for one year because it is in conflict with the Constitution.

Amend Section 7, Chapter 6 by inserting after the word "year" the words "and submit a complete and detailed report to the component county Medical Societies as provided in Section 9, Chapter 3," so that when amended said Section shall read:

Section 7. The Council shall provide for and superintend the issuance of all publications of the Association, including proceedings, transactions and memoirs, and shall have authority to appoint an editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association, which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, and submit a complete and detailed report to the component county Medical Societies as provided in Section 9, Chapter 3. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer.

(Comment) Since the proposed amendment to Chapter 9, Section 3 proposes an impossibility this amendment is also impossible of fulfillment.

Amend Section 1, Chapter 8 by striking out the word "eight" and inserting the word "five," so that when amended said Section 1 shall read:

Section 1. The annual dues shall be five dollars, and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues. They shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The Secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and membership. Any member whose name has not been reported for enrollment and whose dues for the current year have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported and his dues for the current year are paid.

(Comment) If the dues are materially reduced some of the most useful benefits of membership will have to be curtailed. We could no longer carry delinquent mem-

bers. They will have to be dropped as soon as they become delinquent because the financial burden will be too great to carry them.

The provision to give new graduates four years of membership at one half the annual dues will have to be rescinded for the same reason.

The Association seized the opportunity presented during the economic depression to give unfortunate members an extension of time in which to pay their dues and in many cases on recommendation of the county medical society the Association charged off the back dues unpaid and restored the member to good standing on payment of the current year's dues.

Many members are fellows of the A. M. A. but when they are dropped from our rolls they are automatically dropped from the fellowship rolls of the A. M. A. These members also would lose their membership in the Southern Medical Association, the American College of Surgeons and the American College of Physicians. If they happen to be examiners for insurance companies they probably would lose that appointment because these companies do not employ nonmembers. Members dropped would also be deprived of the privilege of reciprocity with other states.

In order that the members may have a thorough understanding of how the Association progresses on the $8 dues we publish in this issue a complete and detailed report of our audit for the year 1933. This report shows that our income was $526.33 more than our expenses. It also shows that our income was $1,468.09 less than in 1932 but that expenditures were reduced in the sum of $2,494.94.

Members should study the report carefully so that the dues shall not be lowered to an amount that will materially lessen the services the Association is now rendering and not lower the standing it now enjoys among other constituent associations of the American Medical Association.

REVISED BUDGET FOR 1934

At the meeting of the Executive Committee held in St. Louis March 14, 1934, a revision of the budget adopted at the Committee meeting held on August 31, 1933, was proposed and adopted as follows:

Salaries (Office and Journal)	$10,600.00
Journal	6,600.00
Legislation	500.00
Defense	1,000.00
Postage	400.00
Postgraduate Work	1,000.00
Printing and Stationery	600.00
Traveling Expenses of Secretary and Assistant Secretary	1,100.00
Telephone and Telegraph	500.00
Rent of Offices and Light	1,300.00
Meetings, Annual Session, Council, and Executive Officers	1,500.00
General Expense and Miscellaneous Expense	600.00
Total	$25,700.00

FINANCIAL STATEMENT FOR 1933

MEDICAL ARTS BUSINESS INSTITUTE
W. H. Richards, Manager
Mission Highlands

Kansas City, Kansas March 14, 1934.

Missouri State Medical Association,
St. Louis, Missouri.

Gentlemen:

In accordance with instructions received, I have audited the books and accounts of the Missouri State Medical Association for the year ending December 31, 1933, and submit herewith my report thereon together with the following financial statements:

Exhibit "A"—Balance Sheet as of December 31, 1933.
" "B"—Income and Expenditure account for the year 1933.
" "C"—Income and Expenditures on Journal for the year 1933.
" "D"—Income and Expenditures on Journal for the year 1933 showing subscriptions and charge for salaries.
" "E"—Receipts and Disbursements for the year 1933.
" "F"—Dues Receivable as at December 31, 1933.
" "G"—Classification of membership by counties as at December 31, 1933.

Scope of Examination

All cash receipts as shown by the books, whether arising from dues or advertising, were deposited in the bank. The source of all receipts were not verified in detail. Tests, however, have been made with reports from various societies which indicate their accuracy. Expenditures were supported by invoices and vouchers and cash was disbursed by cheques, when duly authorized by the officers of the Association as provided by the By-Laws. The assets and liabilities of the Association have been verified and comments concerning same appear hereafter in this report.

Operations

The operations of the Association for the period under review have resulted in a net Income over Expenditures of $526.33, determined as follows:

	Year 1933	Year 1932	Increase *Decrease*
Income:			
Dues	$18,993.00	$19,617.00	$ *624.00*
Rental of Exhibit Space	430.00	250.00	180.00
Rental of Office Space	540.00	540.00	.....
Journal Advertising	6,310.07	7,087.45	*777.38*
Subscriptions to Journal	33.98	82.90	*48.92*
Bad Debts Recovered	16.75	46.53	*29.78*
Interest Received	.....	168.01	*168.01*
Total Income	$26,323.80	$27,791.89	*$1,468.09*
Expenditures:			
Legislative Expense	$ 1,726.17	$ 925.00	$ 801.17
Journal Expense	6,831.64	8,245.94	*1,414.30*
All Other Expenses	17,239.66	19,121.47	*1,881.81*
Total Expenditures	$25,797.47	$28,292.41	*$2,494.94*
Balance	$ 526.33	$ *500.52*	*$1,026.85*

Italics denote decrease.

It will be observed from the above that for the year 1933, the income has been reduced by $1,468.09 with a corresponding reduction of expenditures of $2,494.94.

An Income and Expenditure account in greater detail is submitted herewith as Exhibit "B."

Balance Sheet

A Balance Sheet, showing the financial condition of the Association as of December 31, 1933, is submitted herewith as Exhibit "A." The Assets and Liabilities as contained herein have been verified and comments on the constituent items follow:

Cash—$7,253.87—This item may be summarized as follows:

Mercantile-Commerce Bank & Trust Company	$7,125.96
First National Bank—Secretary's Fund	117.91
Petty Cash Fund	10.00
Total	$7,253.87

I have verified the balance on deposit with the Mercantile-Commerce Bank & Trust Company with a certificate received from them and the Petty Cash Fund by actual count.

Accounts Receivable—Advertisers $773.08: I have examined the individual balances in the ledger comprising this total. Whilst some of these balances are considerably in arrears nevertheless I consider the total amount herein shown as collectable. The following comprise those giving reciprocal service for advertising or receiving gratuitous advertising during the year 1933:

Missouri Pacific Railroad Company	Reciprocal
Wabash Railroad Company	Reciprocal
G. & C. Merriam	Reciprocal
Forest Park Hotel, St. Louis, Missouri	Reciprocal
Melbourne Hotel, St. Louis, Missouri	Gratuitous
President Hotel, Kansas City, Missouri	Reciprocal
R. L. Polk	Reciprocal
St. Louis *Post-Dispatch*	Gratuitous
Better Business Bureau, St. Louis, Missouri	Gratuitous
American Medical Association, Chicago, Illinois	Gratuitous

Gratuitous advertising, I have verified by letters of confirmation from the recipients of such advertising.

A statement of Income and Expenditures of The Journal for the year 1933 is submitted herewith as Exhibit "C."

A *Loss* of *$470.84* was incurred on the publication of The Journal for the year 1933, exclusive of any charge for salaies. From an examination of the By-Laws, Chapter 8, page 17, it appears that of the dues received $1.00 shall be credited to The Journal. This has not been done. It is my opinion that the By-Laws should be complied with and that The Journal should be charged with its proportionate share of salaries.

I submit herewith as Exhibit "D" in Income and Expenditure account giving effect to the subscription of $1.00 per member and charging The Journal with its proportionate amount of salaries, which shows, for the year 1933 the actual cost of producing The Journal. It is quite evident that under the present economic conditions, the receipts from advertising (which receives the approval of the American Medical Association) is not sufficient to cover the cost of publication.

A statement of Receipts and Disbursements of the various funds for the year 1933 is submitted herewith as Exhibit "E."

Dues Receivable—$6,559.00—This item represents the amount due from the membership of the county societies and may be classified as follows:

Unpaid Dues	Amount
Year 1930	$ 16.00
" 1931	372.00
" 1932	1,823.00
" 1933	4,960.00
	$7,171.00
Less Prepaid Dues	612.00
Total	$6,559.00

Outstanding dues show an increase of $1,194.00 over 1932, indicating slowness of collections. The number of members enrolled has decreased during 1933 by 69. On January 1 there were 3,178 members and on December 31, 3,109—classified as follows:

Honor Members	154
Senior Members	2,769
Junior Members	186
Total	3,109

A detailed statement of outstanding dues is submitted herewith as Exhibit "F."

Furniture and Fixtures—$884.50—This amount is arrived at as follows:

Balance, January 1, 1933	$2,767.00
Purchases during 1933 consisting of typewriter replacements	117.50
	$2,884.50
Less Depreciation	2,000.00
Balance	$884.50

The records disclose that no depreciation has ever been taken on Furniture and Fixtures. With the approval of the Executive Committee, the sum of $2,000.00 has been deducted as depreciation and charged against Surplus, leaving a balance of $884.50, which figure in my opinion is still in excess of its actual value.

Accounts Payable—$189.87—This item represents sundry current accounts as of December 31, 1933.

Contingent Liability—$7,500.00—On December 31, 1933, there were twenty-five (25) suits for malpractice pending against members of the Association, on which the association itself has a contingent liability in each case of $300.00.

General

Fire Insurance to the amount of $1,000.00 is carried on Office Furniture and Fixtures, printed books and supplies, etc. Surety bonds for $1,000.00 on Dr. E. J. Goodwin was presented for my inspection. No other officers or employee is under bond.

Chapter 5, Section 3, page 9 of the By-Laws specifies that the Treasurer shall give bond in the sum of $20,000.00.

The books and records were found in good order.

In conclusion, I desire to express my appreciation of the facilities afforded me, the courtesies extended and the cooperation given during the course of the audit. If any further information is desired pertaining to this report, it will be gladly furnished upon request.

Yours very truly,
W. H. RICHAROS, Chartered Accountant.

Exhibit "A"

MISSOURI STATE MEDICAL ASSOCIATION—BALANCE SHEET AS OF DECEMBER 31, 1933

ASSETS

Cash:			
General Fund	Per Exhibit "D"	$4,127.15	
Legislative Fund		2,260.48	
Sinking Fund		769.00	
Defense Fund		97.24	
			$ 7,253.87
Accounts Receivable—Advertisers:			773.08
Dues Receivable:—Per Exhibit "E"			6,559.00
Furniture and Fixtures:			884.50
Total			$15,470.45

LIABILITIES

Accounts Payable:		
Supplies and Expenses		$ 109.87
Contingent Liability:		
To Members on 25 Malpractice suits	$7,500.00	
Reserve for Uncollected Dues:		$ 6,559.00
Fund Balances:		
General Fund	$4,127.15	
Legislative Fund	2,260.48	
Sinking Fund	769.00	
Defense Fund	97.24	
		$ 7,253.87
Surplus:		1,547.71
Total		$15,470.45

Exhibit "B"

MISSOURI STATE MEDICAL ASSOCIATION—INCOME AND EXPENDITURES—FOR THE YEAR 1933

Income:		
Dues	$18,993.00	
Rentals—Exhibit Space—Annual Session	430.00	
Rent from sub-tenant (office space)	540.00	
Advertising in JOURNAL	6,310.07	
Subscriptions to JOURNAL	33.98	
Bad Debt Recoveries	16.75	
Total Income		$26,323.80
Expenditures:		
Salaries—Officers	$ 7,216.50	
Salaries—Office Clerks	3,175.00	
JOURNAL Expense (as per Exhibit "C")	6,831.64	
Printing and Stationery (other than JOURNAL)	462.08	
Postage	341.69	
Rent and Light	1,719.58	
Legislative Expense	1,726.17	
Meetings	1,097.06	
Postgraduate Meetings	598.05	
General Expense	414.79	
Telephone and Telegraph	846.27	
Defense—Malpractice Suits	392.45	
Traveling Expense of President	116.43	
Traveling Expense of Secretary	238.20	
Traveling Expense of Assistant Secretary	559.25	
Badges	52.95	
Insurance	8.82	
Total Expenditures		$25,797.47
Net Income for 1933		$ 526.33

Exhibit "C"

MISSOURI STATE MEDICAL ASSOCIATION—INCOME AND EXPENDTURES ON THE JOURNAL—FOR THE YEAR 1933

Income:		
Advertising		$6,310.07
Subscriptions		33.98
Bad Debt Recoveries		16.75
Total Income		$6,360.80
Expenditures:		
Printing	$5,189.01	
Illustrations	351.32	
Postage	284.73	
Commissions on Advertising	735.97	
Discount to Advertisers	243.66	
Bad Debts	26.95	
		$6,831.64
Loss on Publication		$ *470.84*

NOTE: No charge for salaries of any nature is included in the above schedule of expenditures.
Italics denote loss on publication.

Exhibit "D"

MISSOURI STATE MEDICAL ASSOCIATION—INCOME AND EXPENDITURES ON THE JOURNAL—FOR THE YEAR 1933

On the Basis of $1.00 Per Member Subscription and Proportionate Charge for Salaries

Income:			
Subscriptions—$1.00 per Member		$2,273.00	
Advertising	$6,310.07		
Subscriptions from non-Members	33.98		
Bad Debts Recovered	16.75		
Total Income		$6,360.80	
Total			$ 8,633.80
Expenditures:			
Salaries—Administrative		$2,483.31	
Salaries—Clerks		810.00	
Printing		5,189.01	
Illustrations		351.32	

Postage	284.73	
Commisisons on Advertising	735.97	
Discount to Advertisers	243.66	
Bad Debts	26.95	
Total Expenditures		$10,124.95
Loss on Publication		$ *1,491.15*

Note: Percentage of Salaries chargeable to The Journal:

Administrative	36.88%
Office Clerks	27.00%

Italics denote loss on publication.

Exhibit "E"

MISSOURI STATE MEDICAL ASSOCIATION—CASH RECEIPTS AND DISBURSEMENTS—FOR THE YEAR 1933

General Fund

Balance as at January 1, 1933		$ 3,781.33
Receipts:		
Membership dues collected	$19,044.00	
Journal Advertising	5,158.29	
Refund on Advertising from Cooperative Medical Advertising Bureau	257.90	
Exhibits—Rent at Kansas City Session	430.00	
Rent—Subtenant office space	540.00	
Subscriptions to Journal	33.98	
Bad Debts Recovered	16.75	
Total Receipts		$25,480.92
Total Cash to be accounted for		$29,262.25
Disbursements:		
Transferred to Legislative Fund	$ 2,273.00	
Salaries—Officers	7,216.50	
Salaries—Office Clerks	3,175.00	
Rent and Light	1,719.58	
Journal Expense	5,872.69	
Meetings	1,097.60	
Postgraduate Meetings	584.60	
Telephone and Telegraph	855.92	
General Expense	412.39	
Postage	352.07	
Printing, Stationery and Office Supplies	424.26	
Traveling Expense—President	116.43	
Traveling Expense—Secretary	238.20	
Traveling Expense—Assistant Secretary	559.25	
Furniture and Fixtures	117.50	
Dues Refunded	51.00	
Badges	52.95	
Insurance	8.82	
Federal Tax on Cheques	4.84	
Advertising Refund	2.50	
Total Disbursements		$25,135.10
Balance—December 31, 1933		$ 4,127.15
Represented by:		
Balance—Mercantile-Commerce Bank and Trust Company	$ 3,999.24	
Balance—First National Bank—Secretary's Account	177.91	
Petty Cash Fund	10.00	
Total as above		$ 4,127.15

Legislative Fund

Balance as at January 1, 1933		$ 1,713.65
Transferred from General Fund		2,273.00
Cash to be accounted for		$ 3,986.65
Disbursements:		
Information and Legal Expense	$ 1,503.72	
Miscellaneous	222.45	
Total Disbursements		$ 1,726.17
Balance as at December 31, 1933		$ 2,260.48

Sinking Fund

Balance as at January 1, 1933		$ 769.02
Federal Tax on Cheque		.02
Balance as at December 31, 1933		$ 769.00

Defense Fund

Balance as at January 1, 1933		$ 489.73
Disbursements:		
Defense Expense—Malpractice Suits	$ 392.45	
Federal Tax on Cheques	.04	
Total Disbursements		$ 392.49
Balance as at December 31, 1933		$ 97.24

Exhibit "F"

MISSOURI STATE MEDICAL ASSOCIATION—DUES RECEIVABLE AND MEMBERSHIP—BY COUNTIES—DECEMBER 31, 1933

Dues Receivable

County	1930	1931	1932	1933	Total	No. of Members
Adair	$	$	$	$ 24.00	$ 24.00	12
Atchison	....	....	....	16.00	16.00	13
Audrain	....	....	....	24.00	24.00	14
Barry	....	....	....	32.00	32.00	9
Barton	....	....	8.00	16.00	24.00	4
Bates	....	....	8.00	40.00	48.00	16
Benton	....	....	....	....	....	7
Boone	....	....	8.00	32.00	40.00	42
Butler	....	....	8.00	32.00	40.00	16
Caldwell and Livingston	....	8.00	32.00	96.00	136.00	18
Callaway	....	....	....	40.00	40.00	15
Camden	....	....	....	....	....	2
Cape Girardeau	....	....	24.00	32.00	56.00	30
Carroll	....	....	24.00	24.00	48.00	10
Carter and Shannon	....	....	....	....	....	4
Cass	....	....	....	....	....	17
Chariton	....	....	....	....	....	18
Christian	....	....	8.00	8.00	16.00	8
Clark	....	....	8.00	8.00	16.00	3
Clay	....	....	16.00	72.00	88.00	27
Clinton	....	....	....	....	....	2
Cole	....	....	....	64.00	64.00	37
Cooper	....	....	....	56.00	56.00	16
Crawford	....	....	8.00	16.00	24.00	3
Dallas, Hickory and Polk	....	....	....	8.00	8.00	17
Daviess	....	8.00	16.00	24.00	48.00	4
DeKalb	....	....	....	16.00	16.00	3
Dent	....	....	....	....	....	4
Dunklin	....	....	8.00	72.00	80.00	2
Franklin	....	....	....	24.00	24.00	22
Gasconade, Maries and Osage	....	....	8.00	24.00	32.00	8
Gentry	....	....	....	8.00	8.00	7
Grundy	....	8.00	16.00	40.00	64.00	18
Harrison	....	8.00	8.00	16.00	32.00	3
Henry	....	8.00	35.00	72.00	115.00	18
Holt	....	....	48.00	88.00	136.00	11
Howard	....	....	....	....	....	6
Howell, Oregon and Texas	....	....	32.00	88.00	120.00	26
Jasper	....	....	24.00	56.00	80.00	60
Jefferson	....	....	....	8.00	8.00	14
Johnson	....	....	....	8.00	8.00	18
Knox	....	....	....	8.00	8.00	3
Laclede	....	....	32.00	72.00	104.00	9
Lafayette	....	....	8.00	24.00	32.00	28
Lawrence and Stone	....	....	24.00	40.00	64.00	18
Lewis	....	....	....	....	....	4
Lincoln	....	....	....	....	....	8
Linn	....	....	16.00	24.00	40.00	15
Macon	....	....	....	16.00	16.00	8
Marion and Ralls	....	....	8.00	32.00	40.00	32
Mercer	....	....	....	....	....	6
Miller	....	....	....	24.00	24.00	10
Mississippi	....	....	....	8.00	8.00	7
Moniteau	....	....	....	....	....	4
Montgomery	....	8.00	8.00	8.00	24.00	3
Morgan	....	....	8.00	8.00	16.00	3
Newton	....	....	48.00	72.00	120.00	10
New Madrid	....	....	8.00	8.00	16.00	3
Nodaway	....	....	32.00	56.00	88.00	25
Pemiscot	....	....	24.00	24.00	48.00	12
Perry	....	....	....	....	....	3
Pettis	....	....	8.00	32.00	40.00	32
Phelps	....	....	8.00	24.00	32.00	16

County	1930	1931	1932	1933	Total	No. of Members
Pike	....	....	....	8.00	8.00	13
Platte	....	....	....	24.00	24.00	13
Pulaski	....	....	....	16.00	16.00	7
Putnam	....	....	8.00	24.00	32.00	6
Randolph and Monroe	....	....	24.00	40.00	64.00	31
Ray	....	....	8.00	16.00	24.00	7
Reynolds	....	....	16.00	16.00	32.00	3
St. Charles	....	....	24.00	40.00	64.00	25
San Francois, Iron and Madison	....	....	16.00	56.00	72.00	35
Ste. Genevieve	....	....	....	....	....	6
St. Louis	....	....	16.00	144.00	160.00	120
Saline	....	....	16.00	32.00	48.00	22
Schuyler	....	....	....	....	....	5
Scotland	....	....	8.00	8.00	16.00	1
Scott	....	....	24.00	40.00	64.00	10
Shelby	....	8.00	8.00	24.00	40.00	9
Stoddard	....	....	8.00	24.00	32.00	10
Sullivan	....	....	....	8.00	8.00	7
Taney	8.00	8.00	8.00	8.00	32.00	3
Vernon and Cedar	....	8.00	8.00	40.00	56.00	26
Wayne	....	....	8.00	8.00	16.00	1
Webster	....	....	....	....	....	10
Wright and Douglas	....	....	....	48.00	48.00	11
Buchanan	....	....	8.00	108.00	116.00	115
Greene	....	....	24.00	136.00	160.00	102
Jackson	....	....	92.00	292.00	384.00	559
St. Louis, City	8.00	300.00	920.00	2,136.00	3,364.00	1,089
	$16.00	$372.00	$1,823.00	$4,960.00	$7,171.00	3,109

Less Prepaid Dues:

Adrian	$ 4.00
Bates	4.00
Boone	48.00
Butler	16.00
Cape Girardeau	32.00
Christian	16.00
Clay	8.00
Cole	4.00
Gasconade, Maries and Osage	8.00
Grundy	8.00
Jasper	84.00
Lawrence and Stone	12.00
Lincoln	64.00
Miller	36.00
Nodaway	4.00
Perry	4.00
Phelps	4.00
Platte	8.00
Randolph and Monroe	40.00
St. Charles	4.00
Ste. Genevieve	48.00
St. Louis	32.00
Saline	8.00
Buchanan	16.00
Greene	12.00
Jackson	56.00
St. Louis, City	32.00
Total Prepaid Dues	$ 612.00
Net Dues Receivable	$6,559.00

Exhibit "G"

MISSOURI STATE MEDICAL ASSOCIATION—CLASSIFICATION OF MEMBERSHIP BY DISTRICTS—FOR THE YEAR 1933

District	Membership: Honor	Senior	Junior	Total
Buchanan County:				
Total January 1, 1933	17	98	3	118
Additions	..	4	1	5
Total	17	102	4	123
Deductions	..	7	1	8
Total December 31, 1933	17	95	3	115
Greene County:				
Total January 1, 1933	5	97	4	106
Additions	1	3	2	6
Total	6	100	6	112
Deductions	..	8	2	10
Total December 31, 1933	6	92	4	102
Jackson County:				
Total January 1, 1933	45	498	10	553
Additions	8	17	22	47
Total	53	515	32	600
Deductions	1	35	5	41
Total December 31, 1933	52	480	27	559
St. Louis City:				
Total January 1, 1933	16	1,036	72	1,124
Additions	3	6	20	29
Total	19	1,042	92	1,153
Deductions	4	52	8	64
Total December 31, 1933	15	990	84	1,089
Other Counties:				
Total January 1, 1933	60	1,185	32	1,227
Additions	10	67	41	118
Total	70	1,252	73	1,395
Deductions	6	140	5	151
Total December 31, 1933	64	1,112	68	1,244
Membership—				
December 31, 1933	154	2,769	186	3,109
January 1, 1933	143	2,914	121	3,178
Increase or *Decrease* in Membership, during the year 1933	11	*145*	65	*69*

BOOK REVIEWS

FRACTURES. By Paul B. Magnuson, M.D., Associate Professor of Surgery, Northwestern University Medical School, Chicago. 317 illustrations. Philadelphia, Montreal, London: J. B. Lippincott Company.

This book is well written and is sound from cover to cover. The author's mature judgment and original ideas are well to the fore. Every hospital will find the book a worthy addition to the library and surgeons and practitioners will glean many worth-while points from its 460-odd pages.

He aptly points out and illustrates the use of stiff cardboard well covered with talcum powder to assist in overcoming friction in moving joints. W. R. H.

THE OPERATIVE STORY OF CLEFT PALATE. By George Morris Dorrance, M.D., F.A.C.S., Professor of Maxillo-facial Surgery, The Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania; Surgeon to Saint Agnes' Hospital and to the American Oncologic Hospital, Philadelphia. Assisted by Enayat Shirazy, D.D.S. 564 pages with 534 illustrations. Philadelphia and London: W. B. Saunders Company. 1933. Price $6.50.

The operative history of cleft palate is described in a chronological fashion and the book undoubtedly contains the most complete resumé of cleft palate operative work that has appeared in the English language. This feature alone should make the work invaluable. The latter part of the book is devoted to personal conclusions by the author who argues for his "push back palate operation."

Most of the author's conclusions are fairly logical but if an expression of opinion is allowed, we should think the field of the "push back palate operation" will be largely limited to cases of congenital shortening of the palate, cleft velum and cleft palate which

extends as far forward as the anterior third with the middle third of the hard palate, all of which are relatively rare and none of them the usual case of cleft palate. However, the book should be in the library of every operator of harelip and cleft palate its many good points far overshadowing any defects.

E. C. P.

The Diseases of Infants and Children. By J. P. Crozer Griffith, M.D., Ph.D., Emeritus Professor of Pediatrics in the University of Pennsylvania, etc., and A. Graeme Mitchell, M.D., B. K. Rachford Professor of Pediatrics, College of Medicine, University of Cincinnati, etc. Philadelphia and London: W. B. Saunders Company. 1933. Price $10.00.

This standard work on children's diseases by the same authors published in two volumes is well known and this volume (1155 pages) is the solution of the problem to "maintain the textbook as a work of reference for pediatric practitioners and writers, and at the same time fit it for the needs of undergraduate students." This was accomplished by abbreviating many of the older references and diminishing the size of the text by a decided condensation of sentences and an elimination of superfluous material, thus producing one volume instead of two.

This great labor has been admirably done and we do not hesitate to place this work at the top of single textbooks for reading or reference, for student or practitioner. Any student, or medical writer on almost any pediatric subject, may at once begin a comprehensive study by basing his investigations on the text in this book and utilizing the numerous references appended to each article. We must also emphasize the value of this book as a reference work to the practitioner since the sections on diagnosis are always complete and the directions for treatment are extensive. Some recent textbooks have two much space allotted to the therapeutic measures applicable only in hospitals. This work takes cognizance of the fact that the great majority of children's diseases are treated in the home; therefore, simple procedures readily carried out by the mother are given much attention. The great emphasis laid on the clinical picture as a whole and not on laboratory findings in the diagnosis of various diseases is very gratifying.

We are also glad to note the minor importance placed on the chemical reactions of the body in different diseases as a basis for clinical classification. Much harm has been done by using such terms as acidosis, alkalosis, dehydration, balance disturbance, hypocalcemia, and hypoglycemia as diagnostic appellations. These terms should be relegated to the list of symptom complexes with such other names as fever, sweating, polyuria, paralysis, etc.

The chapter on substitute infant feeding is quite exhaustive. The simple calculations advised for determining the daily food requirements are to be commended. We failed to find, however, any emphasis on the necessity of processing cow's milk in some way in the first four months of life in order to obtain the best results. Simple modification must be supplemented by powdering, predigesting, acidifying or highly heating the milk in order to prevent the so-called milk injury. Practical experience has abundantly shown that the bottle baby, even during the first month of life, thrives much better when given plenty of alien protein (nutritive ratio 1 to 5 or 1.75 to 2 gms. of protein to each pound of weight) but the casein must be rendered more quickly digestible. We would, therefore, reverse the third of his rules for calculation (page 67) instead of "multiply the weight in pounds by 1.5 in the first month of life and thereafter by 1.75 to 2." We would have the figures change places; multiply the weight in pounds by 1.75 to 2 in the first month of life and thereafter by 1.5. But in order to make so much protein digestible the use of powdered milk, peptonized milk, buttermilk or evaporated milk seems necessary in most cases.

This is a really great work but as a textbook for medical students it is too voluminous. However, the teacher of pediatrics may overcome this handicap by suggesting the omission of some articles; e. g., malaria and typhoid fever, which are best studied as a part of general medicine; also such technical matters as tests for biliary functions; or such rare diseases as lipodystrophy; or surgical diseases proper as diseases of the bone.

J. Z.

Diseases of the Chest and the Principles of Physical Diagnosis. By George William Norris, A.B., M.D., Chief of Medical Service "A," Pennsylvania Hospital, and Henry R. M. Landis, A.B., M.D., Sc.D., Professor of Clinical Medicine in the University of Pennsylvania. Fifth edition, revised. 997 pages with 478 illustrations. Philadelphia and London: W. B. Saunders Company. 1933. Price $10.00.

There is very little for the reviewer to say regarding the revision of such a standard textbook as this one, for the text before us represents the teachings of the University of Pennsylvania with regard to chest conditions.

The revision seems to have brought the text up-to-date with current literature, even to the extent of mentioning the doubts recently cast on our traditional interpretation of cardiac murmurs. The editors have included a chapter on electrocardiography from the pen of Professor Krumbhaar. This sketch of the subject stays as closely as possible to the fundamental and generally accepted views of Lewis and his school.

The book is well printed. The illustrations are mostly photographs of pathological subjects and seem entirely adequate. The new edition embodies also the experiences of the Phipps Institute on the study of tuberculosis.

The reviewer can recommend the book for a place on the shelves of every practitioner.

G. H. H.

Food, Nutrition and Health. By E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A., Professor, and Associate of Biochemistry, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland. Third edition, rewritten. Baltimore: E. V. McCollum and J. Ernestine Becker. 1933. Price $1.50.

A well planned, carefully written little book designed for the lay reader in order that "he may have a nontechnical account of the most important discoveries in the field of nutrition and their relation to nutrition in daily life. . . . It is hoped that this information will enable the reader to detect the misinformation now being so widely disseminated by faddists and promoters of foods who make exaggerated claims for their products."

By simple exposition the authors achieve their purpose as stated in the introduction quoted above. Particular emphasis is laid on the necessity of adequate mineral intake if optimal nutrition is to be attained. Repeated emphasis is placed upon the part that the individual physician plays in the treatment of diseases due in part or in whole to faulty diet. This book may be unhesitatingly recommended to patients.

B. Y. G.

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THE SIGNIFICANCE OF THE EMOTIONAL LEVEL

THE HODGEN LECTURE

WALTER B. CANNON, M.D.

BOSTON

Dr. Hodgen, in whose memory we have gathered here this evening, was preeminently a surgeon. He practiced and taught surgery in this community for many years. He was one of the founders of the American Surgical Association; he contributed to surgical literature; he was ingenious in the invention of surgical appliances. Furthermore, he has been described as being a generous, sympathetic, big-hearted man, a strong reliance to all who were in need of help. It was quite appropriate that the lecturers who have preceded me at this annual commemoration of Dr. Hodgen's admirable qualities of character and his outstanding professional services should have been surgeons. We may recall, however, that he not only taught surgery but in his early years was also professor of anatomy and of physiology. One of my predecessors in the Harvard Medical School, Dr. Holmes—who likewise was teaching physiology and anatomy and such histology as there was in the Sixties remarked that he occupied not a chair but a settee! Dr. Hodgen's bench was even longer than Dr. Holmes'. To be sure, Dr. Hodgen soon left it for the surgical chair, but once disciplined by the necessity of thinking about structures and their functions a man does not easily change his point of view. It is altogether probable that Dr. Hodgen preserved in the later years his early interest in the basal medical sciences, and it is quite fitting, therefore, that at this memorial meeting we should consider a topic which has anatomical and physiological bearings; and likewise importance for medicine and surgery. I have chosen to speak on the significance of the emotional level.

An emotion, as the word implies, is a condition that moves us. Indeed, when we have an experience pervaded by a powerful emotional element we speak of it as a moving experience. The force which is exhibited when a strong emotion seizes upon us may be so dominant as to sweep away all considerations of prudence. The mystery of this force has long roused the interest of philosophers and biologists. Spinoza and Descartes have discussed its nature and Darwin and others have studied its manifestations. Modern researches have added considerably to our knowledge of its sources and its effects. I propose that we consider together some recent evidence as to the physiological nature of emotional excitement.

In order that we may be quite specific in our examination of the evidence I suggest that we select at first a single emotion—that of rage—and study its characteristics. In a physiological sense an exhibition of rage follows what may be called a "reaction pattern." When we see a man who is enraged we note his crouching body, his frowning brow, and his lips drawn close over clenched teeth as he growls his threats. His fists are tightened or are grasping a seized weapon. These, however, are the superficial aspects of the pattern. An examination of the deeper changes would reveal an acceleration of the heart beat, a rise of blood pressure, an increase of blood sugar, a redistribution of blood in the body, a greater output of adrenal secretion and a digestive process that is inhibited. Some of these changes can be directly observed in man; and others are inferred from their relations in lower animals.

It is typical of these features of the pattern response of rage that they have many of the characteristics of reflexes. First of all, we do not learn to be enraged; the rage reaction like laughing and weeping is seen soon after birth as a mode of behavior fully pre-

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Read before a joint meeting of the St. Louis Surgical Society, the Medical Fund Society and the St. Louis Medical Society at St. Louis, January 9, 1934.

George Higginson Professor of Physiology, Harvard Medical School.

pared for display. Again, like a reflex, it has a definite stimulus; just as tickling will evoke laughter so anything that hampers or checks or thwarts the satisfaction of any strong impulse in us will call forth the rage response. Like a reflex also the reaction of rage is prompt when the stimulus is appropriate. And it is permanent; the typical pattern will be evoked at different ages in the same individual when the appropriate conditions are present. Furthermore, it has a constant and fairly uniform manifestation in different races; one may not understand the language in a foreign country but on sight one can readily understand the attitude of an enraged native. Again, it is characteristic of reflexes that they are useful; sneezing and coughing, for example, reflexly clear the respiratory passages of irritating material. Similarly the changes which occur in rage, especially the deep changes I have referred to, can be reasonably interpreted as adaptations of the organs of the body such as to render the individual more effective in the struggle which is likely to accompany the aggressive attitude that is associated with rage. Thus, the faster heart rate and the higher blood pressure hasten the transport of the larger quantity of oxygen needed for increased activity and the larger quantity of carbon dioxide resulting from the oxidized metabolites; and the increase of blood sugar provides fuel for laboring muscles. The other changes, likewise, fit into this picture. Finally, it is a fact of primary importance that the expressions of emotions in man and lower animals, as Darwin pointed out in his classical volume, are similar. When the hungry dog is enraged by thwarting for example his instinctive act of eating, he like the angry man shows his teeth and growls and manifests the deep visceral changes already mentioned. Such, then, are some of the characteristics of the reaction of rage.

If we compare the nervous system of man and lower animals the most striking difference is found in the relatively enormous development of the cerebral hemispheres, with their much folded cortical layers in man as compared with any other vertebrate form. These great masses of nervous tissue developed from the anterior portion of the brain stem are new and special features in the human being, sharply differentiating him from all other related fellow-creatures. The spinal cord and the brain stem, on the other hand, are much less altered. Indeed, they can be regarded in their general aspects as practically common to man and to other higher vertebrates.

That the reactions of the two parts of the nervous system which I have just mentioned are strikingly different from one another is well known. The responses of the spinal cord and the brain stem when a stimulus is applied are routinely prompt, uniform and stereotyped. The patellar and pupillary reflexes are examples. Indeed, it is in these lower parts of the nervous system that reflexes, simple and complex, have their central stations. The reactions which involve the cortex of the cerebral hemispheres on the other hand instead of being prompt are delayed; there may be an indefinitely long interval between the reception of the stimulus and any behavior precisely related to it. Also, instead of being uniform these cortical reactions are unpredictable; the same situation presented to different individuals may call forth extraordinarily different activities. And, finally, instead of being stereotyped these reactions are rather easily modifiable; in fact, the whole process of education is directed toward modifying the attitudes and activities of individuals on the basis of previous social experience. We see, then, that there is a sharp separation between the fixity and monotony of the responses from the spinal cord and the ancient portion of the brain, and the uncertainty and variety of the responses from the much more complex cerebral hemispheres.

The question now arises as to where the neuron patterns lie which express emotional excitement. Are they stationed in the primitive portion of the nervous system or in that portion which has been so highly developed in the human being? Evidence in answer to this question was obtained some years ago by Britton and myself in experiments on the cat in which, immediately after etherization, we rapidly destroyed the cerebral cortex (which subserves consciousness) and then permitted the remnant of the animal to emerge from the anesthetic. Almost as soon as freed from anesthesia the preparation exhibited an extraordinary group of phenomena which we called "sham rage." The hairs stood on end so that the tail was like a bottle brush. The pupils were widely dilated, sweat poured out on the toe pads, the blood pressure rose to 200 mm. of mercury or higher, the heart rate went up from a normal of approximately 120 beats per minute to 250 or even 300 beats, and the blood sugar mounted until at the end of two hours it might be five times the usual concentration. Here you will note a manifestation of the deeper changes occurring in the rage pattern but, I would emphasize, in the absence of any possible functioning of the cerebral cortex. Later my colleague, Bard, studied this

preparation still further and learned that it was possible to remove both cerebral cortices, the corpus striatum, and indeed, all of the brain anterior to the lower posterior portion of the diencephalon without disappearance of the sham-rage phenomena. When he removed this small portion, however—a bit of tissue in the cat hardly larger than the tip of the little finger—the phenomena entirely vanished and were replaced by decerebate rigidity. It appeared clear that the neural mechanism for the display of the pattern of rage is located, in the cat, in the hypothalamus. For present purposes, it is sufficiently accurate to speak of this region as the thalamic region. It is here that we find what we shall call the "emotional level."

This location of the neuron pattern which manages the bodily exhibition of the rage response has important significance in explaining many of the phenomena not only of rage but of other emotions as well; and also certain conditions which are not emotional in character. Let us survey together these variously important bearings of the emotional level on other parts of the organism and in relation to facts already considered.

In the first place, it is obvious that the presence of the neural arrangement for the reaction of rage in the thalamic region, where ocular and other reflexes have their seat, is consistent with the facts already stated which show that the bodily manifestations of rage have the typical features of simple reflexes. It has those characteristics because it is managed in that part of the brain in which the reflex type of activity is natural and inherent.

In the second place, the locus of center for the rage response in the thalamic region explains why the expression of rage has many features that are common to man and to lower animals—why both snarl and show their teeth. The thalamic region is in the ancient brain stem which has undergone relatively little change in the course of vertebrate evolution, and therefore its structure and function have not been greatly altered in the development from lower mammals to human beings. Because the brain stem is similar in higher vertebrates the responses from it are similar.

A third significant fact is found in the appearance of the characteristic posture and features of rage after the cortex has been removed. Evidently, this fact proves that there is a double control of certain of the peripheral effectors from two levels—from the cortex and from the thalamic region. When the cortex is removed voluntary control is abolished but control from the emotional level is still retained. We see illustrations of this in the primary stage of ether anesthesia or when nitrous oxide is used as an anesthetic. Under these conditions the individual may be regarded as chemically decorticated. Voluntary control is abolished but the emotional level is still active. The patient under light ether may show signs of rage by fighting and muttering at the attendants who attempt to restrain his movements; and the patient under nitrous oxide may have expressions from the emotional level in laughter or tears, for anesthetists say that laughing gas might quite as reasonably be called weeping gas. Again, in cases of hemiplegia the patient may have destruction of the motor cortex or interruption of the subcortical motor pathway on one side with attendant abolition of voluntary control of facial muscles. Tell such a patient a funny story, however, or make him sad, and he will appropriately laugh or cry, with bilateral symmetry of the response on the two sides of the face. On the other hand, there may be damage of the structures on one side in the thalamic region; then the patient has symmetrical control of the facial muscles if they are voluntarily innervated; but an appeal to the emotional level results, for example, in a one-sided smiling or weeping. Most interesting of all, in relation to the studies on experimental animals, are those human cases of pseudobulbar palsy in which cortical control of the thalamic region is largely abolished. In such cases the emotional expression may be indefinitely prolonged. There are records of patients who have wept or laughed for hours without stopping. In one such instance laughter started at 10 o'clock in the morning and continued steadily till 2 o'clock in the afternoon! It may be noted that these signs of sadness or hilarity are without any reference to the actual situation.

In connection with the evidence that the removal of cortical influence, whether mechanically by operation, chemically by anesthetics or pathologically by disease, releases the emotional level and allows it to manifest its functions to a supreme degree, there is an interesting consideration regarding sleep. It appears logical to suppose that sleep could not possibly be a simple subsidence or abolition of the functions of cerebral cortex. If that were the case we would expect sleep to be attended by a rather elaborate exhibition of emotional reactions. Instead, of course, it is a period of lessened activity throughout the organism. Since the diencephalon is a region in which many bodily activities have their seat and which in the absence of cortical government occasions an extraordinary exaggeration of these activities the conclu-

sion would seem to be rational that sleep might have its source in some change in the diencephalon. The interesting experiments of Hess, in Zurich, which show that stimulation of certain areas in this region causes animals promptly to become somnolent and lie down to rest and slumber offer strong support for this suggestion.

In relation to the double control of lower motor neurons from the two levels, the cortical and the thalamic, previously noted, there is an important distinction to be made between the control of skeletal or facial muscles and the viscera. Whereas facial muscles, for example, are controlled from both regions, so that there may be both voluntary and emotional expression, the viscera are controlled only from the emotional level. It should be obvious that although, in the presence of emotion-provoking circumstances, the cortex by voluntary act may set the features in a state of calm or indifference, the absence of ability of the cortex to affect directly the visceral portion of the thalamic pattern would not permit the palpitating heart, the high blood pressure, or the active sweat glands to be inhibited. Thus, a person may put on a bold face because cortical government of the facial muscles can at times dominate the emotional government of these muscles, but he may be boiling inside because the cortex cannot govern the organs of the thorax and the abdomen.

Another consideration which has an importance, especially for psychology, is the evidence which points to the thalamic region as the origin of that special quality, the "affect" or "feeling tone" associated with sensation, which changes the "object-simply-perceived," as William James framed it, into the "object-emotionally-felt." The testimony that the source of the peculiar experience of emotion is found in the diencephalon is derived chiefly from clinical observations on patients who present the so-called "thalamic syndrome." Such patients, as Henry Head has noted, may have abolition of cortical control of the thalamic region on one side. In these circumstances the phenomena which result can be best explained as an exaggerated activity of the thalamus on the side of the lesion. Associated with this greater activity is a very stiking intensification of feeling tone or emotional experience, but only on the affected side. On that side, contact with a cold test tube is felt as something extremely disagreeable. On the other hand, contact with a warm test tube yields exquisite delight. A pin-prick, felt as a slightly unpleasant sensation on the normal side, is reported, when tried on the other side, as being absurdly painful. And even if there is a central source of elation as, for example, when martial music is played, the effect again is unilaterally exaggerated.

The points just detailed, taken in relation to previous evidence, have an important bearing on a well-known theory of emotion. You are doubtless aware of the suggestions made by William James and Carl Lange which resulted in the so-called "James-Lange theory" of the origin of emotional experiences. In general statement they attributed the emotional elements in consciousness to reverberations from peripheral changes, especially those arising from modified function of the viscera. Does not the recently emphasized rôle of the emotional level offer an alternative explanation? We have seen clear evidence that the thalamic region when excited discharges downwards to skeletal muscle and the viscera and, as Head's cases prove, simultaneously discharges upwards to the cortex. If we did not know the rôle of the thalamus as a source of impulses discharged in the two directions we should naturally suggest, as James and Lange did, the visceral disturbances are the source of emotional feelings. It is obvious, however, that the James-Lange theory cannot account for the striking unilateral intensification of affective tone in the cases of unilateral damage to the corticothalamic tract described by Head. Furthermore, the theory fails to account for the continuance of emotional experience in persons with transection of the cervical cord whose viscera are no longer able to report to the cortex.

Still another interesting point related to the emotional level in the diencephalon is the explanation it offers of the mysterious character of emotional experience. We probably have no conscious states associated directly with the nervous processes occurring in the thalamic territory. Certainly it is true that reflexes in that region, such as those governing the iris and those concerned with body posture, are not attended by consciousness. If we may assume that the pattern reactions of neurons which operate in this region are not immediately associated with conscious states but influence consciousness only when they discharge to the cortex, there would be a reasonable explanation of the mystery. The emotional element would be something added to the perceived object but added suddenly and intensely from outside the conscious realm. Thus might be explained certain expressions in common use. Persons testify to being "surprised" by an emotional experience, to being "seized" by

powerful feelings, to being "possessed." They testify that something "surged up within them" and controlled their actions. All these sayings, which are taken from daily experience, are readily accounted for if we regard the emotional level as being subconscious.

In order to make clear the next matter of significance in the emotional level—the way in which emotions may profoundly influence the organism—I must first present some basic considerations concerned with our two environments. We are all aware of our external environment, the structure and motions of objects that surround us, which we learn about through our sense organs. By means of these sensitive areas on or near the body surface there are sifted into us impressions of air vibration, contact, chemical change and rays of light which start impulses that are transmitted along nerve paths to the cerebral cortex and there are combined in perceptions of sound, touch, smell or taste, and vision. From the cortex nerve impulses pass down to skeletal muscles. By means of them we directly or indirectly produce all the varied alterations of our surroundings, such as are seen, for example, in airplanes, ocean liners, radio transmission and the other miracles of present-day civilization. Commonly we regard ourselves as living in this external environment. In fact, however, we are shut off from it by a layer of dead material—the horny covering of the skin or the mucous covering of other parts of the body surface. All that is really alive within us is bathed in a fluid—the rapidly moving blood and the more slowly moving lymph. It is in this "fluid matrix" of the organism that the living parts reside. This constitutes what Claude Bernard called the "internal environment."

Variety may be the spice of life so far as the external environment is concerned, but constancy is of primary importance for the internal environment. Indeed, only by the maintenance of a fair degree of constancy in some of the important constitutents of the fluid matrix are we permitted to continue our ordinary existence. For example, the usual concentration of blood sugar is approximately 100 mgm. in 100 c.c. of blood, or 100 mgm. per cent—a heaping teaspoonful for an adult. If the concentration falls to about 45 or 50 mgm. per cent, convulsions are likely to arise and a continued fall to a lower level will result in coma and death. Or, take calcium as another constituent. If the calcium concentration, which is normally about 10 mgm. per cent, is reduced to half that figure convulsions occur; if it rises to 20 mgm. per cent the blood may become so viscous that only with difficulty may it be made to circulate. Or, consider the reaction of the blood. Ordinarily it is slightly alkaline. If it is changed until it becomes even in the least degree acid the individual will go into a coma, and if it is made slightly more alkaline than the normal degree he will go into convulsions. These examples illustrate the somewhat narrow margin of safety which prevails in the fluid matrix; that we are ordinarily free from the dangers of coma or convulsions indicates that there must be nice arrangements for the avoidance of the shifts that would bring upon us the menace of these dangers.

The mechanisms for constancy of the internal environment are to be found in the autonomic or involuntary nervous system. As you are well aware, there are three divisions of this system, the cranial, the sacral or parasympathetic divisions, and the sympathetic. It is characteristic of the cranial division that it serves for the conservation of the bodily energies and the laying by of bodily reserves. Thus the vagus, as a part of this division, holds the heart in check when bodily activity is minimal. And the vagus also establishes a tonic state of the gastro-intestinal tract and in cooperation with other representative nerves of the cranial division stimulates secretion of the digestive glands, when such function is appropriate, so that the food which is taken in is properly digested and utilized or stored for future use.

The sympathetic division consists of a series of ganglia arranged along either side of the midline from the superior cervical ganglion high in the neck to ganglia low in the pelvis that are connected by so-called preganglionic fibers with the thoracic and upper lumbar portions of the spinal cord and that send out postganglionic fibers to smooth muscles and glands in all parts of the body. Smooth muscle thus innervated is found at the roots of hairs, in the walls of blood vessels, in the gastro-intestinal tract and in other viscera. The glands include not only those producing sweat on the skin surface, but also the digestive glands secreting into the alimentary canal.

It is characteristic of the sympathetic division that when strongly excited it acts as a whole. This unitary action of the sympathetic is reinforced by a chemical agent, adrenin, which nerves in this division cause to be discharged from the adrenal medulla and which, carried in the blood stream, has practically everywhere in the body the same effects as sympathetic impulses themselves. In this unitary action the sympathetic induces a faster heart beat, a contraction of

blood vessels in the splanchnic area and in the skin with consequent rise of blood pressure, a dilation of the blood vessels in skeletal muscles, a contraction of the spleen where red corpuscles are concentrated, an enlargement of the bronchioles, an increase of blood sugar by discharge from stores in the liver, and a faster metabolism. It is a matter of considerable interest that these alterations are serviceable for maintaining constancy of the internal environment in a variety of circumstances which might disturb that constancy.

We can understand most clearly the functions of the sympathetic division if we examine the deficiencies of animals which have been completely deprived of their sympathetic system. By applying surgical methods it is possible to remove both ganglionic chains from such animals as the dog, the cat and the monkey. These animals will live for many months—indeed, some of our cats have lived for years—in the confines of the laboratory without at first sight appearing to be different from quite normal animals. The reason for this deceptive appearance of normality, however, is due to the circumstance that ordinarily the animals are not subjected to any disturbing stress. As soon as such stress is placed upon them they immediately manifest their deficiencies. For example, if they are emotionally excited there is no increase of blood sugar. The facilities for mobilizing this source of energy for muscular work have been destroyed. Again, if they struggle the heart may beat somewhat more rapidly because of lessening of the vagal check, but it cannot accelerate as it normally does because the accelerators in the sympathetic division have been removed. Furthermore, the blood pressure instead of rising actually falls in the absence of the sympathetic vasoconstrictor nerves. Also, whereas in the normal animal contraction of the spleen discharges concentrated corpuscles into the circulation and thus increases the carriers of the respiratory gases, this function in the sympathectomized animal is totally abolished. Moreover, the protection against temperature change is much impaired. In the normal animal, such as the cat, there occurs on exposure to cold an erection of hairs which enmeshes a thicker layer of air about the body—a layer which is a poor conductor of heat and which therefore protects against heat loss. Besides this change there is as in man a contraction of the surface vessels so that the warm blood of the body is less generously delivered to the skin where it would lose heat to the cool outer atmosphere. In addition, there is a discharge of adrenin which, as mentioned above, accelerates the metabolism of the body and thus produces an extra amount of heat which helps to prevent the lowering of body temperature. Note that all these changes—the erection of hairs, constriction of blood vessels and discharge of adrenin—are brought about by the sympathetic system. But this system is not only active when the temperature tends to fall; it is serviceable, likewise, when the temperature tends to rise, for under such conditions it acts to increase the pouring-out of sweat which on evaporating cools the skin and at the same time it relaxes the blood vessels and allows a larger amount of the warm blood from the interior of the body to flow through the cooled surface.

The internal environment may be disturbed by both internal and external conditions. A few examples will make clear the nature of these disturbances. In muscular work, for instance, there is a great production of nonvolatile lactic acid. The immediate way in which this can be got rid of effectively is by burning it to carbonic acid. This requires the delivery of abundant oxygen to the muscles where the burning occurs, and at the same time the carriage of the resulting carbonic acid from the muscles to the lungs where it is breathed away. This more ample transportation of the respiratory gases, which protects the body against the development of a dangerous acid reaction, is brought about by the sympathetic system, for the faster heart rate, the higher blood pressure from vasoconstriction resulting in a faster blood flow to the active muscles where vessels are dilated, and the increased concentration of red corpuscles from contraction of the spleen, are all due to action of the sympathetic. But muscular work also produces a large quantity of heat. If this could not be got rid of our activities would be promptly checked by a degree of temperature so high that it would be perilous. The sympathetic is again effective and by an abundant output of sweat prevents the body from becoming overheated. In muscular work, also, sugar is largely employed. There is little danger of the convulsions from low sugar content, however, because from the liver the sympathetic system releases sugar as it is needed. From these observations it is easy to understand why sympathectomized animals, the dog, for example, trained to run in a treadmill, become much less efficient if the sympathetic system has been removed.

I have considered the rôle of the sympathetic in maintaining constancy of the internal environment when there is danger that the temperature may fall. It is a point of great interest that sympathectomized animals when exposed to cold are no longer able to protect themselves by the usual reactions and have to utilize to an unusual degree the only defense which remains to them, namely, the automatic muscular con-

traction of shivering, which, by producing heat, helps to prevent the temperature from falling too low.

Now that I have laid this rather broad basis for an understanding of the influence of the sympathetic system on the internal environment I wish to make clear the relation of emotional excitement to that environment. Already I have emphasized the point that the central control of the sympathetic system is to be found in the diencephalon; I need only refer again to Bard's evidence that the neural mechanism of sham rage has its locus in the hypothalamus. Under normal conditions, as we have already seen, the changes which take place in great rage or fear can be interpreted as useful adaptations of the body for vigorous struggle. It should be clear, however, that if no struggle occurs and an intense emotional state persists the changes occurring in the body no longer are a preparatory safeguard serviceable in fighting or flight but may be on the contrary profoundly disturbing. In present-day civilization we have many occasions for fears, anxieties and worries when there is no vigorous bodily reaction called for. The financier who watches the downward course of his security values or the waning of the returns from his investments; the applicant for a position who is about to undergo a severe physical and mental test; the mother who realizes that she has lost control of a wayward son or daughter; the anxious and responsible patient who faces a serious operation, all these cases illustrate the situations which may develop intense emotional turmoil in the body when energetic action for defense or escape is impossible. The bodily adjustments characteristic of the emotional state appear, in their natural manner, but are now not only quite futile but, worse than that, quite likely to be damaging.

We have seen that the faster heart beat and the heightened blood pressure from splanchnic stimulation are useful in the swift carriage of the respiratory gases; and that this change occurs both in vigorous exertion, and as an accompaniment of fear or rage which may be attended by the need for such exertion. But the sympathetic nerve impulses which constrict the blood vessels of the splanchnic area and thus deprive the digestive organs of much of their blood supply, simultaneously inhibit the digestive functions which cannot continue when the circulation is deficient. Thus, if this unitary sympathetic system is brought into action by strong emotions there is not only the mobilization of the bodily forces previously described but a stoppage of the beneficient processes of digestion. Cabot cites a case of a man whose broken leg mysteriously failed to knit. The patient, an ignorant foreigner to whom the hospital was an utterly strange place, had been left uninformed concerning the welfare of his family. After some time this fact was discovered, whereupon he was completely reassured. When this occurred, the normal course of repair began and continued to a satisfactory healing. The explanation offered for the phenomenon was that the anxiety and distress occasioned by fear for his family's welfare deeply interfered with the digestive and nutritive functions and thus retarded the bony union. In the literature of diabetes there are many instances of the state becoming much intensified by emotional upsets such as rage and fright—an effect wrought, no doubt, by sympathetic impulses. The best explanation of the sensitive heart—the "D. A. H." of wartime—is that it has its origin in emotional instability. These and other examples which could be cited are clear indications of the way in which the emotional level, by affecting the sympathetic system—the system in control of constancy of the internal environment—may have harmful influence on the organism as a whole.

Thus far we have considered the emotional level in lower centers of the brain stem as being under an inhibitory government from the cortex. The cortex is the agency of our voluntary acts. We have already seen that although the cortex can voluntarily check the expression of emotion in skeletal muscles, it cannot directly influence the changes in viscera which are brought about by discharges from the diencephalon. This does not mean, however, that the cortex is not concerned with control of emotional situations. The visceral changes produced in such situations may, to be sure, be conditioned by experience, that is, by cortical functions. You are familiar with the conditioned reflexes described by Pavlov in which a direct and inborn stimulus for a certain act becomes by association related to the circumstance prevailing at the time the stimulus was applied. Thus, the ringing of a bell at the time food is given may result in establishing an association such that subsequent ringing of the bell causes flow of saliva. In much the same way, the involuntary bodily reactions which characterize emotional excitement may become conditioned by the circumstance which attended their appearance. Thus, during the war the banging of a door or any other sharp noise would not uncommonly bring about a sharp sense of danger and raise a haunting fear in persons who had been sensitized by experience with a nearby shellburst. In a similar way, other pathological conditions can be accounted for. It is recorded that a wife who happened to see her husband walking with a strange woman on the street became greatly perturbed and on rushing anxiously into her house found that her heart was

palpitating in a distressing manner. The palpitation appeared whenever she ventured on the street. She was convinced that she was suffering from a disease of the heart although her physician explained that there was no evidence of cardiac derangement. The case can be readily accounted for by a conditioning of the patient to publicity on the street by the emotionally upsetting incident which occurred there. There are many ways in which the cortex and the lower emotional level may interplay. I have touched upon only some of the more striking relations between the two levels.

Men engaged in medical practice, whether physicians or surgeons, have many opportunities to see ways in which strong emotions may upset the organism. I have cited disturbances of digestion, of metabolism and of the heart. There are still other instances which I might mention to show the influence of the emotional level. In conclusion, may I urge the propriety of recognizing where the organic seat of emotional disturbances is to be found. As we have seen, it lies in the ancient part of the brain—a part of the brain which we share with lower animals. It is a region where the primitive reactions of attack and defense have their source. It is associated with the functioning of the sympathetic division of the autonomic nervous system; a system which regulates body heat, which regulates blood sugar, which governs the acid-base relation of the blood, and it may be concerned with the water balance, fat metabolism and the phenomenon of sleep. Obviously when this region is brought into activity, as is certain to be the case in strong emotional excitement, it may, as we have learned, deeply affect the internal environment of the body and thus determine for weal or woe the fate of the whole organism.

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STAPHYLOCOCCUS TOXOID IN TREATMENT OF PUSTULAR DERMATOSES

Daniel J. Kindel, Cincinnati, and Maurice J. Costello, New York (*Journal A. M. A.*, April 21, 1934), treated forty-two patients with pustular dermatoses including twenty-eight cases of acne vulgaris, eight of sycosis vulgaris and six of furunculosis with staphylococcus toxoid. No patient received less than 2 cc. total dosage, the maximum being 15.5 cc.; the average was 6.5 cc. per case. Of the forty-two cases, eight were slightly improved and thirty-four were unimproved or worse at the end of treatment. Furuncles developed in two cases after large doses of toxoid had been administered. The authors believe that although their series of cases is small, the results appeared to be so definitely unsatisfactory that continuation of this method of treatment seemed unwarranted and that caution should be exercised in becoming overenthusiastic about the value of staphylococcus toxoid until further reports confirm or deny their observations.

AN EFFICIENT METHOD OF HEAT THERAPY IN THE TREATMENT OF SYPHILIS

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The use of heat in one form or another occupies an important position in the modern treatment of syphilis. It is conceded with any new procedure that there are a number of details which are not well worked out. The relative values of the different types of thermal stimulation are certainly a matter of dispute; evaluation of clinical results is at times rather difficult; and, above all, the very important question as to the exact *modus operandi* by which heat exerts its beneficial effects is very much in doubt.

As to the position of heat therapy in relation to other forms of antisyphilitic treatment we are of the opinion that under all conditions, no matter how favorable, any form of heat therapy may be looked upon at best as an adjuvant in the treatment of syphilis; and that it is never to be relied upon solely and to the exclusion of all drugs.

In general, the types of pyretotherapy can be divided into two classes:

1. Biological—including malaria, sodoku, relapsing fever, intravenous typhoid.
2. Mechanical—diathermia, heat cabinets, electrotherms, etc.

Regardless of the relative virtues of the methods now in vogue it is manifestly impossible to subject more than a small percentage of luetics to diathermia, malaria, heat cabinets, etc. With this in mind we have recently tried a simple method of heat treatment on a series of patients at the Kansas City General Hospital. This consists of temperature elevations by means of hot baths in an ordinary bath tub. The degree of temperature elevations which we have been able to obtain has been very striking; and though the series of cases is not extensive as yet, we are able to show a few very markedly favorable clinical results. And especially we are able to show that temperatures so produced are fully comparable to those attained in heat cabinets, diathermias and electrotherms.

Hot baths have been used by several workers in the past few years both in experimental animals and clinically and the literature on the subject is gradually accumulating.

In 1926, Schamberg and Rule[1] reported an interesting series of experiments on the therapeutic effect of experimental syphilis in rabbits and on the thermal death point of the spirochete

in vitro. At that time they concluded that the syphilitic infection could be completely annihilated by the use of pyretotherapy alone. About 18 months later they[2] published a follow-up report in which it was stated that latent syphilitic infection had been demonstrated after a longer lapse of time. They concluded that heat has an inhibitory effect upon the treponemata, but probably not spirocheticidal in all instances.

Bessemans,[11,12] of Belgium, has carried out a very elaborate and extensive series of studies, using both experimental animals and humans, and comparing several different forms of heat; i. e., hydrotherapy, actinotherapy, aerotherapy and heated paraffin applications. He concludes that the Treponema pallidum is capable of being destroyed in vivo and suggests some clinical applications of his ideas.

In clinical practice one of the earliest sets of investigations as to the value of hot baths, per se, was carried out by Schamberg and Tsieng[4] and by Schamberg and Rule.[3] They treated late secondary and tertiary syphilodermata with baths. Results were usually favorable although not strikingly so. There were but slight improvements in the serologies.

Mehrtens and Pouppirt[5] treated a series of seventy neurological cases most of which were luetic with a total of 900 hot baths. They obtained some very encouraging results including a uniform improvement of the serology, especially the colloidal gold curves. Especially were they pleased with the symptomatic results in tabetics; they assert that this method is by far superior to all others from the standpoint of symptomatic relief of lightning pains, gastric crises, etc.

Cady and Ewerhardt[8] of St. Louis studied the effect of hot baths on a series of thirteen Wassermann-fast advanced syphilitics, mostly CNS. They conclude that there is no consistent evidence that hot baths are useful in Wassermann-fast cases although the serology is perhaps rendered more labile at the time the baths are taken.

From Hot Springs, Arkansas, long a "National Health Center" for the treatment of syphilis, come reports by E. A. Purdum[7] and by Black and Blackshare.[9] The former considers the superior results obtained by Hot Springs baths as due to the fact that water there can produce fever at much lower temperatures than ordinary water by virtue of the presence of certain "radio-active substances" therein contained whose mode of action is not yet understood. Black and Blackshare are much encouraged by their results on 22 tabetics, 17 luetic meningitides and 12 other advanced cases. They believe that a rapid rise of temperature followed by a rapid fall is the most effective therapy; this producing a double shock to the spirochete and rendering it more amenable to chemicals.

The question arises at this time as to the mechanism whereby the favorable action of heat is exerted. This question will be considered in full detail in the near future. At this time, we state briefly that we are very strongly of the opinion that the Spirochaeta pallida does not die a thermal death in vivo. The advocates of this idea (that a thermal death is produced) admit that it is not possible to clear up primary or secondary syphilis by means of pyretotherapy. Certainly it would seem a gross inconsistency to assume that the spirochete of tertiary syphilis could vary so widely from its fellow of the early stages in so essential and constant a biological feature as the thermal death point in vivo.

We believe that the mechanism is a specific stimulation of the immune mechanism, embodied probably in the reticulo-endothelial system. In the early stages the system is already stimulated to the utmost by an overwhelming invasion; therefore there is no further benefit derived from thermal stimulus. On the other hand, in the late stages there exists an indolent condition of the defensive forces, so to speak; and the value of stimulation in such a case is obvious. In this connection, the studies of Bruetsch and Bahr[6] are of the utmost significance. They have shown that during and immediately after a malarial paroxysm, there is a vast and widespread mobilization of macrophages, and a generalized clearance of cell plugs, detritus, and even of perivascular round cell infiltration. This is all quite independent of the presence or absence of the spirochete. Furthermore, the same thing can be demonstrated clinically, as has been shown by one of us (A.N.L.) in interstitial keratitis. Here there are never any spirochetes present in the cornea; and yet the cell detritus can actually be observed to be mobilized under therapy.

We present this brief summary of the theoretical background of this problem in order that the rationale of our methods of procedure may be clearly understood. Assuming, as we do, that the fever merely acts as a starter to set in motion the defensive forces, then it follows that the object would be to attain repeatedly, at suitable intervals, high degrees of temperature to act as "impulses." To maintain the fever for any great length of time is of no advantage; for presumably the favorable actions set in during and after subsidence of the temperature. Therefore, exposure lasting four or five hours (as for instance in a heat cabinet) would seem unnecessary; probably it even delays the onset of the reparative process a little. And since the conception of a thermal death of the spirochete in vivo seems untenable we believe there is no point to such a procedure.

We wish to point out to the profession at this time that there is available a convenient, simple and efficacious method of artificial fever therapy in the form of these hot baths. The temperatures attainable are quite remarkable and would certainly seem to be adequate for the purpose. We do not have the benefit of any "radio-activity" or other mysterious elements in our water at Kansas City; our heat is ordinary hot water. Furthermore, our cases represent all types of moderately and far advanced syphilis; we have not confined ourselves to central nervous system involvement. We firmly believe that the time is near when every case of syphilis, at some time during its career, will demand one or more courses of heat therapy by the dictates of best practice. And very obviously, it is and probably will be possible to subject but few of these to any of the standard methods now in vogue.

So therefore the hot bath has a very definite and valuable purpose. Its availability is almost universal. The drawbacks are few and relatively insignificant. The technic is simple. And, above all, the results are satisfactory. But even if this method had an efficiency only 60 per cent that of other methods the total benefits derivable from so universal a procedure as this should be tremendous. The technic which we employ follows:

The patient is immersed in a tub of water at 95° to 105° F and the temperature is gradually increased by the addition of hot water. There is a surprising individual variation, both in the degree of heat a given patient can tolerate and also in the length of time he can endure exposure to it. There are some who cannot stand a long exposure but who can tolerate a very high temperature; others can endure for a long time but only at a rather low temperature; and there are some hardy souls who can stay at a remarkably high temperature for relatively long periods of time. We have one patient who stayed at 125° for 8 minutes!

The individual tolerance is definitely built up from day to day. It is this tolerance which must govern the ultimate amount and intensity of heat which is administered. Roughly, the goal is a bath water of 105° to 115° for 10 to 30 minutes. The mouth temperature is taken every 5 minutes. The patient is watched very closely as to his pulse and general appearance. At the first sign of distress, anxiety or collapse, the bath is discontinued. Following the bath there is a profuse diaphoresis during which the patient is warmly bundled up and allowed to sweat it out. Normal temperature is regained in 30 to 60 minutes. The patient rests for several hours; fluids are forced; and rarely are any untoward effects seen. Usually there is a stimulation of the appetite and a euphoric reaction after several hours. Patients often gain weight under treatment. Baths are given daily if tolerance is satisfactory.

As mentioned above, there is a remarkable individual variation in the tolerance and in the thermal response to the same bath temperature for the same length of time; as though the temperature center had been "sensitized." On the other hand, there are those who must be "stepped up" several degrees daily, in order to maintain levels previously accomplished. No two patients react alike; but the response of any given patient is usually quite constant so that after a few days of study his reaction can be controlled with remarkable consistency. This factor of control is very helpful in making comparative studies.

The highest temperatures which we have attained with any degree of consistency run about 105° to 106° accomplished by a bath water of 116° for 20 minutes. Probably a consistent maximum temperature much below 103° is of doubtful therapeutic value, as a rule. It is to be emphasized that a very important adjuvant to this treatment is an intelligent and watchful attendant, for there does occasionally occur a collapse of the patient; and, on the other hand, it is well to have some one to push the treatment to full toleration, which the patient himself will seldom do.

The contraindications to this are the same, generally speaking, as to other forms of thermotherapy. They are, briefly, as follows:

1. Advanced age is the greatest single factor; for, with age come the various degenerative diseases, hypertension and lessened resistance to severe strain. Seldom should a patient over 55 be subjected to thermotherapy.

2. Anemia of any character, the degree being more important than the type. A red blood count under 3,000,000 is a definite contraindication.

3. Cardiovascular-renal disease of more than mild grade.

4. Degenerative disease of the liver and spleen—cirrhosis, Banti's, chlorosis, jaundice of any type.

5. Advanced chronic diseases—tuberculosis, carcinomatosis, Hodgkin's, dermatitis exfoliativa.

6. Grave metabolic disease—diabetes, thyrotoxicosis.

As stated above, these are the contraindications to all forms of heat therapy; and if a long-extended course of baths is contemplated, then each one would likewise hold good here. However, since this a mechanical type of pyrogenesis it carries the decided advantage that it can be started and terminated at will and also read-

ily controlled; for there are very little if any cumulative effects. Therefore, one can with impunity institute a short course of hot baths in many cases where a course of malaria would be out of question. Similarly, this advantage holds over the single chill method of typhoid inoculations; for obviously there is no way to control the severity of any one chill, once inoculation has been done. The other thing is that baths can be given in frequently repeated short courses, which is of course impracticable with biological therapy.

We have used hot baths on a variety of types of advanced syphilis. Most of the cases have been advanced tabetics and taboparetics; but we have also included interstitial keratitides, gummata of the skin, late nodular syphilodermata, Charcot joints and a few visceral syphilides. The entire series is, as stated above, as yet not large enough to justify more than tentative conclusions; but we feel that in a few cases, some of which are here cited, results have been quite striking; in many cases less tangible benefits have ensued; and in no case has any harm been done.

REPORT OF CASES

Case 1. White girl, unmarried, aged 20. First seen in dispensary on November 21, 1933. History of loss of sight in left eye 7 years ago with partial restoration in the next 2 or 3 years, to present status (can now count fingers at 7 feet). For past 2 months, the right eye has been involved—blurred vision, pain, photophobia, frontal headache. Took some injections in the arm, and some drops by mouth, a few weeks ago.

Examination reveals a fairly well-nourished girl of 20. Absence of two upper incisors. Some thickening of cortices of both tibiae, by roentgenray. Right eye—conjunctiva intensely congested, more so below; limbus infiltrated with small salmon-colored patch below and cornea hazy to the center; marked photophobia. Left eye—fine vessels in the stroma extending to the center of the cornea. Blood Wassermann and Kahn negative. Spinal fluid negative. Tuberculin with 1/10 mg. of OT negative.

Diagnosis: old interstitial keratitis of the left eye with active interstitial keratitis of the right eye. Condition of the right eye became progressively worse, and on December 12, 1933, patient was admitted to hospital. At that time the vision was reduced to light perception in the right eye and the salmon patch extended to the center of the cornea and the whole cornea was markedly infiltrated. Presumptive diagnosis of congenital lues was made, but in the absence of serological confirmation, either in the blood or the spinal fluid, it was not deemed justifiable to inoculate with malaria inasmuch as all our malaria was contained in syphilitic blood.

On December 21, 1933, a series of daily hot baths was instituted. She made a very remarkable febrile response, and after the first week attained quite regularly temperatures of 105° to 106°, as shown in the accompanying graph (Fig. 1). The middle line represents the temperature of the bath water, the lowest line the time in minutes during which the maximum temperature was maintained. A series of nineteen such baths was given during which the girl made a remarkable clinical improvement, the salmon patch having entirely disappeared with a complete absence of the photophobia. No other form of antiluetic treatment was given at this time. The pain and the photophobia disappeared very rapidly; and a little later, objective signs of clearing up could definitely be seen. She was dismissed from hospital on January 23, 1934, in fairly good condition. For two weeks she was treated in the dispensary with injections of iodides intravenously and mercury intramuscularly. At this time, there appeared evidence of renewed activity in the right eye, and she was readmitted to the hospital for more baths. This time she received eleven baths (interrupted by a seven-day menstrual period). The process was arrested, and has since cleared up even more than it had previously. On February 24, 1934, vision in the right eye was

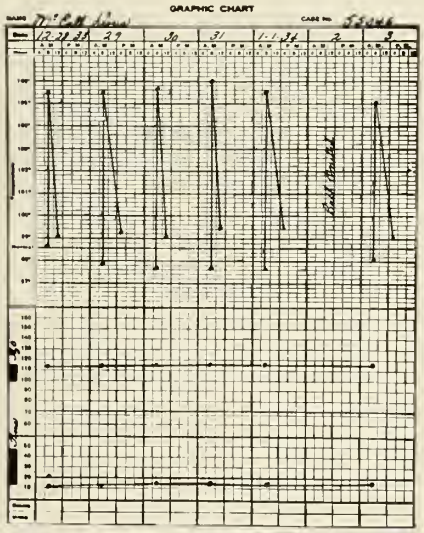

Fig. 1. Interstitial keratitis.

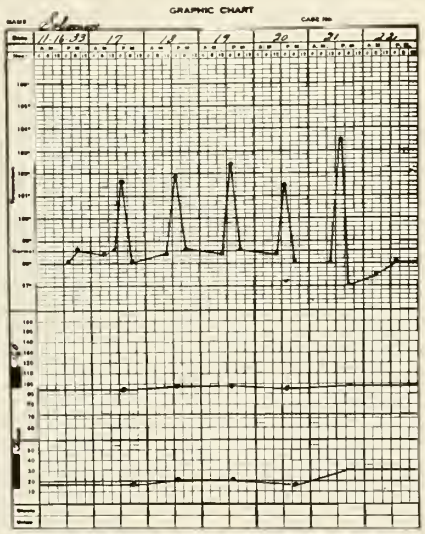

Fig. 2. Advanced tabes.

20/200. She is perfectly comfortable now and has not had a heat bath for almost a month.

Case 2. A. S., male, white, aged 44. Came to dispensary in June, 1933, with moderately advanced tabes dorsalis. Given a course of malaria in August, 1933. Felt fine for two months thereafter. In November, 1933, he came in complaining of shooting pains down his legs and progressive loss of bladder control. He was admitted to the hospital and given a series of only five heat baths. This patient could not seem to tolerate very high temperatures—never over 100°—but he would stay in the water for a long time. His temperature reaction is shown in fig. 2. He obtained a most remarkable relief of his symptoms from this short series of baths. His pains have disappeared and his bladder control has returned almost completely.

Case 3. M. B., male, white, aged 29. History of chancre one year ago; no systemic treatment of any kind. Admitted to isolation hospital February 20, 1934, with a late secondary syphiloderm of the corymbiform type (Fig. 3). A series of twelve baths was given; temperature average of 103°. The lesions cleared up in toto. No effect on the Wassermann.

In closing, we wish to emphasize that we are calling the attention of the profession to an efficient method of heat treatment which deserves and is easily susceptible of wide clinical trial. We do not advocate this as the best method of heat therapy, be it understood; for we still believe that of all the methods, malaria is preëminently the method of choice. In malaria, there is apparently a specific endo-reticular stimulation to a much greater degree than is accountable merely by the pyrexia produced, judging by mechanical pyretotherapy as a standard. But malaria can be given to but few; hot baths can be given to almost every case.

Fig. 3. Corymbiform syphilid.

SUMMARY

1. A simple and efficacious method for the artificial raising of body temperature by means of hot tub baths is described.

2. The theoretical concepts of the action of fever upon syphilis are briefly discussed, along with the application of these to clinical practice.

3. The technic of administering hot baths, along with precautions and contraindications, are elucidated.

4. The scope of this method of treatment is pointed out.

5. A brief report of three clinical cases is included.

CONCLUSIONS

1. It is possible to produce temperatures of 104° and over by simple hot bath treatments.

2. It is not necessary to maintain a high temperature for hours in order to obtain satisfactory results, for we do not believe that the Treponema pallida dies a thermal death in vivo.

3. We believe that heat therapy of any type operates by the production of an immunological response from the reticulo-endothelial system, and that the various types are relatively efficient only to the extent that they provoke such response. For this reason we still think that malaria is the most efficient form of heat treatment.

4. All individuals, no matter what their type of syphilis—barring those with definite contraindications—would benefit by a course of these baths at some time in their career.

5. Hot baths are a safe and efficient method of heat treatment. They should be afforded an extensive clinical study.

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ROENTGENOLOGICAL CONSIDERATION OF SILICOSIS

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Silicosis is a form of pneumoconiosis caused by breathing air containing silica dust. Its occurrence is world-wide, having been reported from almost every country. In our own country it is prevalent from coast to coast.

Much has been written concerning the etiology, pathology and physical signs of this condition. While all writers agree upon the importance of radiographic examination in diagnosis, perhaps too little stress has been placed upon this phase. In the etiology of this condition, it must be remembered that any inert or relatively insoluble dust reaching the lungs in sufficient quantity may cause a pneumoconiosis but only dust containing silica produces silicosis. However, a lung filled with dust is a wounded lung and should be considered as subnormal in its vital resistance toward the onset of disease. A lung containing silica dust has a strong predilection toward the onset of tuberculosis. This susceptibility is unusual.

It is not advisable to overlook any diagnostic medium in the early stages of silicosis. The importance of the serologic and the physical examinations with the past history is so great as to render all the steps of the complete examination of almost equal importance. It has been often said that no diagnosis of silicosis can properly be made without the roentgen ray examination. This is true, but the roentgen ray examination must not be considered as being sufficient except in advanced stages.

A careful history is essential, particularly in the early stages of the disease, since it often suggests the presence of tuberculosis. This history should be searching in detail. The present condition of the patient must also be considered. The results of the physical examination which follows depends largely on whether the disease is simple silicosis or is complicated by tuberculosis.

In uncomplicated or simple silicosis, the physical findings in the early stages are vague and uncertain. The varying signs have been ably described by many writers and will not be discussed in this paper. It is well recognized, however, that in the early stages of tuberculosilicosis the physical signs are almost entirely those of tuberculosis, thereby masking the symptoms due to silicosis. The radiographic examination is recognized as the most dependable diagnostic medium. In the first, second and often in the third stage of silicosis, the diagnosis is quite difficult without roentgen ray films.

It would perhaps be advisable to discuss the pathology to some extent so that a more definite understanding may be had concerning the shadows appearing in the roentgen ray films. The fine dust particles which pass the cleansing mechanism of the respiratory passages are deposited in the lymphatics around the small bronchioles. Due either to mechanical irritation or chemical irritation from partial solution of the silicacious material, there occurs a fibroblastic reaction which results in a wall of hyaline fibrous tissue. This surrounds the dust particles and forms the so-called nodule. These nodules are first seen in the tracheobronchial glands, then in the pleura and finally in the lung substance. Often the pleura will be studded before the lung parenchyma becomes involved. The peculiarity of this invasion lies in the fact that the hilus glands do not increase in proportion to the progress of the disease. It is not uncommon to notice a lung in an advanced stage of silicosis so studded with silicotic nodules as to resemble a snowstorm and the hilus glands will show comparatively little increase in size or calcification. As the disease progresses the nodules increase apparently by peripheral extension and also tend to coalesce. In infective or tuberculosilicosis the nodules contain more fibrous tissue, are more rapid in growth and often show comparatively early central necrosis. This central necrosis does not occur in simple silicosis.

The division of silicosis into three stages, first, second and third; or "early," "moderately advanced" and "advanced," has been accepted in this country. In South Africa, a prenodular stage is also considered. This prenodular stage corresponds to the earliest recognizable stage of the invasion wherein no nodules are visible but the patient's history and symptoms are coupled with the radiological findings of diffuse peribronchial fibrosis. When silicosis is complicated with tuberculosis, the symptoms are mainly those of tuberculosis, but the progress is usually much more rapid than in either silicosis or in average tuberculosis.

For the roentgen ray examination the patient should be stripped and the films made using a technic which will result in "soft tissue" or "light" films. Dark, over-exposed films are not desirable since the density will obliterate many of the finer lung markings and deposits which would appear on a lighter film. Radiographs should not be made with

penetration sufficient to show the spine or the sternum. Stereoscopic films are preferable despite the fact that through economic necessity many laboratories are using the single film. To one who has the ability to see stereoscopically there can be no possible comparison between the details observed in the stereoscopic films as compared with the single radiograph. It is well known today that films made at a distance of from five to seven feet reduce the amount of distortion and give an excellent idea of the relationship between the organs of the chest. The technic for taking such films will not be mentioned excepting to say that rapid or "flash" exposures are necessary.

In the average normal adult chest the hilus shadows do not extend over 7 cm. in width from the midline and do not cover more than two interspaces and one rib. Normally, there is only slight peribronchial thickening and the infiltration about the bronchial tree cannot be traced past the middle third of the lung. That is based upon the process of dividing each lung area into three vertical segments of equal width when measured at the level of the hilus. It must be remembered, however, that very few adult chests present such "normal" findings.

In the first stage of simple silicosis the working ability of the patient is impaired but slightly, there is a mild shortness of breath on exertion, with sometimes a dry nonproductive cough. The tendency to frequent colds is a factor noted in all stages of this disease. Pain in the chest is transitory, mild and often absent. Most of the symptoms are vague; the breath sounds may be slightly harsh and roughened but are usually indefinite. Percussion produces normal sounds and there is no temperature rise. The tendency to frequent colds is the most common complaint. These symptoms may be explained by the roentegn pathology.

Fig. 1. Early silicosis. The fibrosis and coarse nodulation is present. Early infiltration noted in the left apex. Hilus within normal limits.

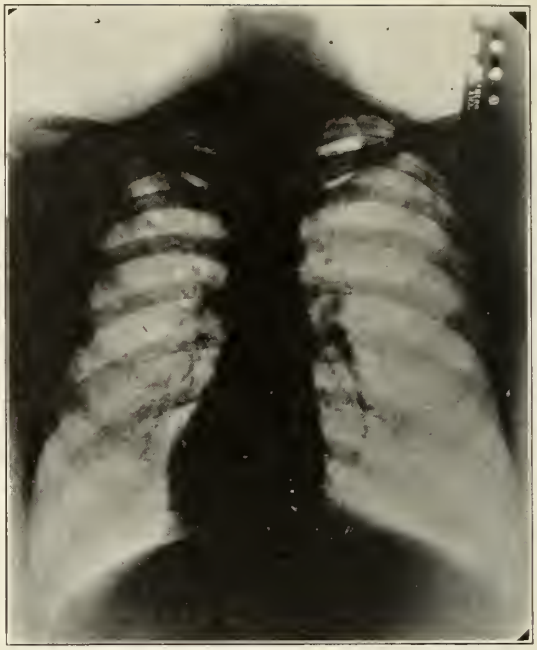

Fig. 2. Advanced second or early third stage with tuberculous infiltration and coarse nodulation.

The roentgen pathology closely follows the symptomatology. Therefore, it is thought advisable to consider the symptoms of the various stages with the roentgenological appearance of these stages.

Much has been said of the general arborization or the diffused peribronchial infiltration as shown in the radiographs. This infiltration outlines both large and small bronchi for a distance considerably beyond the normal limits. The bronchial shadows often extend to the periphery of the lung and are fairly equally distributed throughout both lungs. Careful examination will disclose the presence of small, rounded opaque shadows which follow the course of the smaller bronchi. These are shot-like in type and are usually less than one sixteenth of an inch in diameter, although some may be larger. The hilus shadows are slightly enlarged and usually of increased density. The nodulation occurs at the bifurcation of the small bronchi and appear first in the area close to

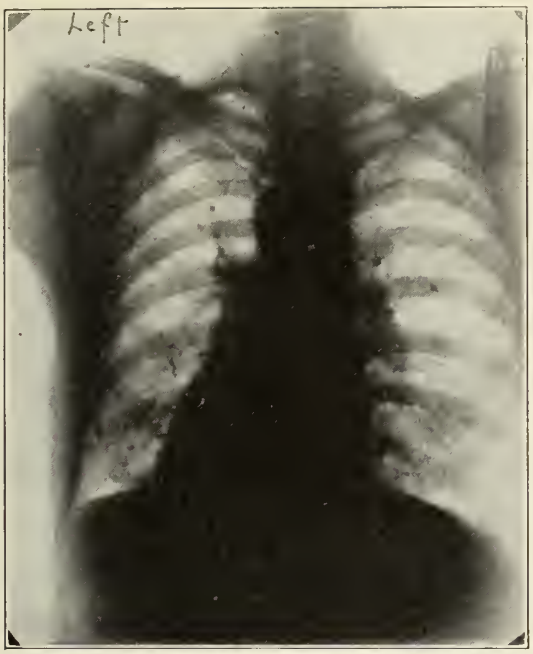

Fig. 3. Second stage showing coarse nodulation and peribronchial fibrosis.

the hilum and gradually extend toward the periphery. There is seldom evidence of roughness or "tenting" due to pleuritic adhesions attached to the diaphragm. Such pleuritic involvement often occurs in the later stages. (Figure 1.)

The progress of the disease is gradual and does not produce any well marked change from one stage to the other. As the disease progresses, the symptom of shortness of breath on exertion is somewhat more pronounced. Chest pains are more frequently mentioned and the dry cough may be more noticeable. This cough is often noted in the morning and is sometimes followed by vomiting. At this stage, the gastro-intestinal symptoms of indigestion, nausea, vomiting and constipation are sometimes sufficiently marked as to mask the chest pathology completely. However, this is more commonly noted in the third stage. In the second stage, the patient appears quite healthy as a rule; the chest wall may become rounded and prominent as in early emphysema and the respiratory movements are somewhat lessened. There is a tendency to become tired easily, the weight often remains stationary and may even increase. Percussion sometimes gives a flat note, particularly over the upper posterior chest wall. The breath sounds show a tendency toward roughness, the temperature is usually normal, the tendency toward "catching cold" is more marked.

The roentgen ray findings of the second stage consist in an increase of the pathology noted in the first stage. The nodules increase in size, number and density. There is already a tendency to coalesce, whereby they become larger and lose the discrete shot-like outline but become increasingly dense. The nodules are usually scattered equally throughout both lungs and have begun to invade the parenchyma. The peribronchial infiltration becomes more pronounced. Often the very small bronchi are clearly outlined, particularly in the upper lobes and about the periphery. The extension of the nodules toward the periphery is more marked but they are more numerous in the midvertical section and the bases of the lungs. The hilum shadows may be slightly increased and slightly more dense but this is indefinite and not a constant factor. There is evidence of pleuritic involvement as shown by irregular roughness which may occur on both sides of the diaphragm. Sometimes the costophrenic or cardiophrenic angles show impairment of outline due to pleuritic thickening. This is usually unilateral but has been noted bilaterally. Sometimes the pleuritic involvement is quite marked and is accompanied by severe pain. (Figure 2.)

Few cases advance beyond the second stage without complication by tuberculosis. In the third stage all the symptoms are increased. The dyspnea is quite obvious and

Fig. 3A. Advanced silicosis with tubercuolsis involving both lungs. Aortic aneurism is also present. Thickened pleura noted in both lungs.

distressing upon slight exertion. The patient is seldom able to do anything but light work and requires frequent rest periods. The cough may be troublesome. The gastro-intestinal symptoms are more prevalent. Chest pains are more frequently noted and are commonly associated with pleurisy. At this time signs of thickened pleura with short harsh inspiratory breath sounds may be noted. The percusion note is changed to a flat, dead sound, particularly over the upper chest wall. Bronchiectasis is not unusual in simple silicosis but in the infected or complicated types it is more frequently noted. The secondary infection usually is tuberculous and when present results in a rapid advance of both silicosis and tuberculosis. The bronchiectasis when present is evidenced by copious quantities of purulent expectoration, particularly in the morning. This is usually associated with advanced gastro-intestinal symptoms of nausea, vomiting, indigestion and constipation, although occasionally a persistent diarrhea is found. Temperature increase is usually an indication of secondary infection.

The roentgen findings of the third stage consist of an increase of the previous pathological indications. The nodules have coalesced into large, coarse, opaque shadows and are widely scattered throughout both lungs. The appearance is startling, showing such diffuse, opaque shadows as almost to eliminate the lung parenchyma entirely. One cannot but marvel that such involvement still permits sufficient pulmonary aeration for the continuation of vital function. Pleurodiaphragmatic adhesions are quite common. Sometimes the heart is displaced by these adhesions. The trachea is also frequently displaced. This stage is not often seen without tuberculous involvement. (Figures 3 and 3A.)

In tuberculosilicosis the roentgen ray findings are a combination of silicosis and tuberculosis but the symptoms and clinical findings are predominantly those of tuberculosis. It is perhaps advisable to state at this time that in early silicotuberculosis it is extremely difficult to make a differential diagnosis from the roentgen ray films alone. A series of films taken at intervals of several weeks, coupled with careful clinical check-up, temperature charts, serological examination, etc., are of great value.

In tuberculosilicosis one sometimes finds the radiographic shadows indicative of tuberculosis alone, especially when the tuberculosis is limited to the upper lobes. However, careful examination of these shadows will

Fig. 4. Third stage silicosis with coarse, diffuse nodulation and early tuberculous involvement.

show increased density of the peribronchial fibrosis with rather widespread tuberculous infiltration through the parenchyma. This is not associated with destructive parenchymal changes in amount commensurate with the extent of the tuberculosis. From this it is probable that the spread of the tuberculosis is affected by the silicosis to such an extent that tuberculous cavitation occurs more slowly, due to the rapidly deposited products of inflammatory reaction produced by the combination of the two disease entities. The silicotuberculosis is usually more rapid in progress than either silicosis or tuberculosis.

Later, as the disease progresses, the formation of tuberculous cavities is common; but even then these cavities are usually smaller and show denser walls than generally noted in uncomplicated tuberculosis. The distribution of the caseation and cavity formation is unusual also since their occurrence is not in the locations customarily conceded to tuberculosis. On the contrary, in tuberculosilicosis, cavities may be found in any part of the lung from the apex to the base showing no predilection for any location.

SUMMARY

Silicosis is a disease entity due to the inhalation of dust containing silica. The percentage of the free silica is not important, since numerous cases have been found among

men working in dust containing as low as 2 per cent free SiO_2 (silicon dioxide) or free silica. The higher the percentage of silica present in the inhaled dust the greater are the possibilities for infection to man. The disease manifests itself by gradually increasing symptoms of dyspnea, cough, decreased working ability, increasing tendency toward "catching cold" and a decidedly lowered resistance to pulmonary tuberculosis.

Roentgen signs in all three stages are definitely diagnostic, but diagnosis should not in the early stages depend entirely upon the roentgen ray findings. Tuberculosis is a fairly common complication and when present makes the prognosis less favorable and often results in more rapid advance of both silicosis and tuberculosis.

Gastro-intestinal symptoms sometimes mask the pulmonary pathology. This is noted in the second and third stages particularly. The subjective and objective symptoms progressively increase leaving no demarcation between the various stages of the disease.

Marked as the result of industrial hazard, silicosis, despite tremendous medical attention world-wide in scope, has received comparatively little attention industrially in this country. Very little has been done toward correcting the dusty atmosphere in mines, quarries, etc. England, recognizing the tremendous economic importance of this disease, has made great advance toward the correction of the dust evil. It is to be hoped that similar steps will be quickly taken in this country. The insidious onset and high ultimate mortality of silicosis should require the use of every possible preventive measure.

Use has been made of numerous articles on this subject. Appreciation is expressed for the information gleaned from the references.

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SILICOSIS

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Silicosis is the name applied to the massive fibrosis of the lungs caused by the inhalation of excessive quantities of minute particles of silica dust. As this fibrosis of the lungs develops, the subject presents progressively increasing shortness of breath, steadily decreased chest expansion and a decreasing capacity for work out of all proportion to the evidence of disease. The inhalation of silica dust causes more industrial disability than any other type of dust.

The inhalation of different dusts causes varying pathological changes, depending upon the characteristics of the material inhaled. Certain dusts act as constitutional poisons; in this group lead, arsenic and mercury are of importance. Other dusts act as irritants causing catarrhal inflammation of the mucous membrane lining the air passages; this group of dusts includes various kinds of vegetable fiber, tobacco, cotton, or wood, which are soluble organic substances. The third main group of dusts causes a mechanical fibrosis of the lungs; these are mainly insoluble substances such as coal, cement, stone, granite, marble, flint, asbestos and many others. In this group of dusts those containing the largest amount of free silica cause the most marked changes in the tissues of the lungs.

Etiology.—The exciting cause of silicosis is therefore the inhalation of dust which contains particles of free silica. To produce disease this must continue over a relatively long period of time. Free silica acts both by mechanical irritation and by chemical action. The harmfulness of any dust containing silica varies with the size and shape of the particles, the quantity inhaled, and the proportion of free silica in that particular dust. A study of substances containing silica reveals that their silica content varies considerably. Granite contains 35 per cent free silica dust, quartz is nearly 100 per cent free silica, asbestos contains 40 per cent free silica, while cement dust contains only 1 per cent free silica.

Investigation of the density of the dust sufficient to produce disease shows that about ten million particles per cubic foot of dust containing 35 per cent free silica can be tolerated over a period of years with very little if any pathological changes. If the density is increased much above this figure definite disease will tend to develop. The size of the particles is also of importance as it has been shown that seldom do particles over 2.5 microns in diameter and almost never do particles over 10 microns reach the alveoli of the lungs. Similarly, particles

less than one half micron in diameter very seldom are carried far enough into the air passages to produce fibrosis of the lungs.

Observation in mines in South Africa over some forty years show that silicosis develops usually after an average exposure of seven and one half years. If conditions are unusually unfavorable many cases develop after two or three years' exposure. In this country where working conditions are usually under better control the average duration of exposure before the appearance of symptoms is twelve to fifteen years. There is much evidence to show that after a relatively short exposure sufficient dust may be deposited in the lungs to set up a progressive fibrosis which only after many years gives symptoms. As a corollary it has been suggested that men working in silica dust develop symptoms only after many years of exposure, not because that length of exposure is necessary to produce silicosis but because it takes a long time for the disease to develop.

More recently some acute cases of pulmonary disease due to the inhalation of silica have been reported where exposure of only a few months caused enough lung damage to produce symptoms. The dust causing these cases was an alkaline soap dust which contained dry silica as an abrasive material. It is thought that in these cases an insoluble colloidal mass was formed lining the air passages and interfering with the normal protective action of the large mononuclear cells and cilia lining the trachea and bronchial tree.

Predisposing Factors.—Besides the actual inhalation of the silica particles there are several predisposing factors which may cause silicosis to develop more rapidly and with greater severity. The race or nationality of the individual probably makes very little difference in the development of the disease assuming normal good health for all. However, in a racial group where the incidence of tuberculosis is above normal, there will be an increased tendency toward silicosis. The age of the individual does have a definite influence on the development of the condition, as figures clearly show that men past forty develop symptoms of pulmonary fibrosis more rapidly than men of younger age groups.

The general physical condition of the subject is of importance in considering the liability to disease from silica dust. If his condition is normal in every respect he is in less danger of developing the condition than individuals who present any of the following abnormalities: (1) Upper respiratory infections, large adenoids, nasal polyps, large nasal turbinates or other conditions which may cause or favor mouth breathing. (2) Acute or chronic bronchial inflammation or alcoholism, because these factors suppress the defense action of the cilia in the trachea and bronchi. (3) The presence of an arrested or active pulmonary tuberculous infection, because of the characteristic faculty of silicosis to activate any tuberculous infection of the lung, which in turn causes the silicosis to develop more rapidly.

Another predisposing factor is the previous or coincident inhalation of other dusts not containing silica such as coal, metallic dusts, tobacco, cotton or wood. The vital predisposing cause is of course the occupation of the individual. Wherever individuals work in the presence of dust containing silica they are in danger of the disease. Some of the specific occupations which cause exposure to silica are mining, steel working, grinding or dressing stone or concrete, glass blowing, asbestos manufacturing, sand blasting, granite cutting, metal grinding, brick working, and in the pottery and refracting industries.

Pathology.—The pathological changes which occur in the lungs are due to the two different actions of the silica particles. The obvious change is that caused by the presence in the tissues of the sharp, needlelike, and insoluble particles of silica which cause mechanical irritation. The other and less obvious action of silica is a chemical one which decreases the vitality of the cells which inclose them. Other dusts of equal hardness as silica and in equal amounts apparently do not produce such severe lesions as silica because of the lack of chemical action. It is felt that dusts are more injurious as their chemical composition differs from that of the tissues of the human body.

Dust is normally inhaled through the nose. As it passes through the nasal passages the greater part of the dust is normally caught by the secretions lining the turbinates and other surfaces of the nasal passages. These are readily blown out. Other particles carry further and are caught by the moist surface of the pharynx. These particles are coughed out or swallowed. If the particles get past the overhanging epiglottis and into the larynx most of them will be caught by the mucus bathing the walls of the larynx, trachea, and the bronchial tree. The cilia lining these mucous membranes will carry the particles upward where they can be expectorated or swallowed.

What few particles get beyond the ciliated epithelium of the bronchioles reach the atrial spaces where are situated the terminal alveoli. Here the first steps leading to the fibrosis are inaugurated. Of the particles that reach the alveoli a greater part are distributed in the lower two thirds of the lungs and as a consequence

the fibrosis of silicosis is usually more marked in the lower part of the lungs. As was mentioned previously, it is mainly particles between 0.5 and 2.5 microns in diameter which reach the alveoli and start the condition of silicosis.

When these particles reach the alveoli the defensive large mononuclear cells of the blood migrate into the alveoli and inclose the particles. These cells then migrate back through the lining mucous membrane of the alveoli into the lymphatic spaces. Then still inclosing the particles of silica dust these cells are carried along the lymphatic channels to the lymphatic glands in the tracheobronchial area. Here nature attempts unsuccessfully to dissolve the insoluble particles. As this event keeps recurring the lymphatic glands become filled with mononuclear cells containing particles of silica.

These cells are affected by the chemical action of the silica grains and rapidly lose their vitality. They become mummified and die. As a result the lymphatic glands become packed with grains of silica. Other mononuclear cells carrying other particles of silica along the lymphatic channels become crowded and cannot reach the blocked glands. Next, the lymphatic channels themselves become packed with mummified cells containing silica.

Finally, the mononuclear cells in their losing battle are only able to carry the silica grains to the lymph spaces adjacent to the alveoli. Masses of silica particles one or two millimeters in diameter accumulate there and by their mechanical and chemical action irritate the adjacent tissues. Fibroblasts surround these accumulations in an attempt to wall off this enemy from the tissues. Firm sclerotic areas are formed with a wall of fibrous tissue on the outside and a mass of silica particles within. If these areas form in sufficient numbers some will come in contact with others, they will coalesce and form larger plaques. This may continue until there are innumerable sclerotic areas one to three millimeters in diameter throughout the lungs and many large masses as well. This condition can be pictured as developing in all parts of both lungs simultaneously.

These changes make the lung less elastic, increase the bulk of the lung, make aeration of the blood less efficient, and decrease the circulation through the lungs. As a result a more vigorous respiratory effort is necessary to supply the blood with an adequate amount of oxygen and to remove the accumulated carbon dioxide in the blood. An increased inspiratory effort is needed to create greater negative pressure within the chest in order to draw into the less elastic lung the same amount of air. An increase in the normal tidal volume is needed because of the decreased aeration of the damaged alveolar structures and the impaired circulation through these alveoli. As the volume of the lungs becomes increased due to the continuing deposit of silica and the increasing amount of fibrous tissue, the chest gradually becomes held and later fixed in a position of partial inspiration. Breathing becomes more and more diaphragmatic. Even diaphragmatic breathing is eventually made less efficient, because of the usual development of a basal pleurisy which causes the inelastic lung to become adherent to the upper surface of the diaphragm.

Secondary infection with bacteria may cause still greater lung damage. Chronic bronchitis or bronchiectasis may be caused by the streptococcus, staphylococcus, pneumococcus, or other pyogenic organisms. However, the most common secondary invader is the tubercle bacillus. Tuberculosis of the lungs becomes superimposed upon the silicosis and each condition favors the steady progression of the other with a usual termination in death.

Subjective Symptoms.—The individual developing silicosis first notices that he becomes tired more quickly than previously and that he cannot work as efficiently; otherwise he feels well and he suffers no loss of weight. Somewhat later he experiences shortness of breath on exertion; at first it is only slightly more than normal but as the disease progresses this difficulty becomes steadily exaggerated and in the late stages of the condition air hunger may become extreme.

Another common early symptom is the occurrence of frequent and persistent colds; the individual will often report that he has had a cold all winter. Besides these colds he may notice a mild but persistent cough which is usually dry and irritating and not productive of any sputum. At first the cough is noticed particularly on arising in the morning; later it becomes troublesome throughout the whole twenty-four hours. As the condition progresses the cough usually becomes productive, sometimes with enormous amounts of tenacious sputum. The secretions forming this sputum probably occur only when the silicosis is complicated by a superimposed infection.

In the latter stages of the disease sharp and inconstant pains throughout the chest are usually complained of, particularly in the region of the bases of the lungs. This is due to a dry pleurisy with the resultant formation of adhesions between the parietal and visceral pleura. At the time dyspnea becomes a marked symptom evidence of cardiac insufficiency usually appears. The patient observes marked palpitation on exertion, an increase of the heart rate, and

exaggerated shortness of breath. In advanced cases progressive loss of weight occurs.

At the same time many gastrointestinal symptoms may appear which tend to direct the individual's attention from his chest to his digestive system. He may notice excessive gas and bloating, epigastric discomfort after eating, constipation, coated tongue, etc. These tend to become more troublesome as the disease progresses. Another frequent group of symptoms in the advanced case are chilly sensation, fever, night sweats, hemoptysis. These occur only when a complicating infection, usually tuberculosis, has developed. It is of interest to note that of a group of men who show definite evidence of early silicosis by roentgen ray one third of them will deny any symptoms.

Objective Symptoms.—The objective symptoms noticed by the examiner are relatively slight in the early stages of the disease but become increasingly obvious as the condition progresses. The patient with early disease usually appears healthy with a ruddy complexion and often gives a history of an increase in weight. This increase in weight is probably due to the fact that the amount of manual labor performed has been diminished because of increasing fatigue and shortness of breath on exertion and yet the appetite has continued good and the caloric intake has been greater than required.

The most definite physical abnormality observed at this time is the decreased respiratory movement of the chest. Chest expansion is diminished, the thoracic cage is less elastic, and greater effort than normal is required to produce a normal inhalation. As the condition becomes worse the chest becomes more fixed and breathing becomes almost entirely diaphragmatic. As a result it will be noticed that the accessory muscles of respiration are called into constant use. The chest seems to be fixed in a position of inspiration and has an increased anteroposterior diameter. This makes the individual appear more erect and more muscular creating further deception of good health.

Auscultation of the chest shows little change from normal until the condition is advanced; then the breath sounds become rough and the expiratory phase prolonged. At this time rales usually appear but probably only when a complicating infection has occurred. Definite pleurisy friction rubs may be detected.

After the disease has lasted for many years enlargement of the heart is a fairly constant finding. At first an increased blood pressure may be registered, but later the systolic pressure usually drops below normal. An increase in the pulse rate even while at rest usually accompanies the change to the lowered pressure. A test of the vital capacity of the lungs shows progressive decrease from normal, as the stage of the disease becomes more advanced.

The typical signs of silicosis are best shown by roentgen ray examination. At first the hilum shadows are increased both in density and size. Soon calcified areas are detected in the hilum. Next the markings in the bronchial tree become increased extending even to the outer margins of the lungs. The next change will be the appearance of small discrete areas of increased density along the edges of the bronchial markings. These areas look like shot and are usually from one to three millimeters in diameter. They are usually more abundant in the lower parts of the lungs but are uniformly bilateral and no part of the lung escapes. These areas increase gradually in size, number and density. Finally, individual areas may coalesce to form larger areas of marked density forming large irregular plaques. Late in the disease the domes of the diaphragm become accentuated, and often less smooth in outline than normal.

Diagnosis.—The diagnosis of silicosis is usually not difficult if it is suspected. It is usually based on (1) the history of prolonged exposure to silica dust, (2) to the gradual development of the cardinal symptoms and (3) to the confirmatory roentgen ray findings of the chest. However, there are two diseases which may closely imitate the roentgen ray findings of silicosis. The existence of these conditions should be ruled out before a positive diagnosis is made. These two conditions are miliary tuberculosis and metastatic malignancy of the lungs.

The mottling of the lung fields in miliary tuberculosis is usually finer and more hazy, the areas are more uniform in size and shape, they are less discrete having poorly defined borders. They also tend to involve the upper more than the lower lobes of the lungs although the distribution is in general symmetrical. Large plaques are never formed in a true miliary tuberculosis.

In metastatic malignancy of the lungs the areas are usually very variable in size, usually with numerous large plaques out of proportion to the number of smaller areas. Metastases tend to infiltrate the hilum and adjacent lung tissue more than in either pulmonary tuberculosis or silicosis. However, occasionally the metastases may take the form of small diffuse discrete areas that are difficult to differentiate from either silicosis or miliary tuberculosis. In these cases search for a primary malignancy in another part of the body may clear up the uncertainty.

Prognosis.—The prognosis in a case of sili-

cosis varies with the extent of the fibrosis of the lungs. If the condition is early and without complicating infection, the outlook for recovery, when removed from further inhalation of dust, is as a rule favorable. On the contrary, if the condition is advanced or complicated by infection, particularly of a tuberculous nature, the outlook for improvement or recovery in spite of removal from any further inhalation of dust, is poor. Figures from a report of conditions in South African mines show a mortality rate during the period of observation of 29 per cent from simple silicosis, of 46 per cent from simple tuberculosis, and of 89 per cent where silicosis and tuberculosis were coincident. Death usually results from a progressive cardiac insufficiency or extensive pulmonary tuberculosis.

Careful observation over many years has developed the opinion that once a man develops prominent symptoms while still in a dusty occupation, stopping work usually does not prevent the gradual and steady progression of symptoms and pathological changes. There is also evidence that many who stop working in dusty employments before the development of any symptoms later on develop symptoms due to the inhalation of dust during that previous period.

Statistics show that workers exposed to silica dust and to a less extent when exposed to other dusts have an excessive death rate from tuberculosis. The introduction of pneumatic and electric tools in the manufacture of stone has caused a tremendous increase of tuberculosis of the lungs in those working with these appliances. In 1890 when stone cutting and polishing was done with comparatively crude tools the death rate from tuberculosis among these workers was 150 per 100,000. By 1910 the death rate from tuberculosis had increased to 1080 per 100,000 and by 1925 the deaths from tuberculosis had reached 1950 per 100,000 of these workers, an increase to thirteen times that of the period before high speed tools were brought into use. The explanation of course is that the modern equipment creates many times the density of dust produced by manual labor. Cases of silicosis became very numerous and many of them developed tuberculosis. During this same period when tuberculosis among these workers was increasing so rapidly the death rate from tuberculosis throughout the country was reduced to about half the rate of 1890.

Treatment.—The treatment of silicosis is unsatisfactory. The first essential is to remove the individual from his exposure to silica dust; this is of value in most cases if the disease is in the early stages but is without much avail in well advanced cases. Other attempts at treatment must be symptomatic. Support the heart muscle if it is weak, use sedatives or expectorants for cough if required, limit exertion to the point where dyspnea does not occur, give abundant nourishing food, expose the patient generously to fresh air, etc. In carrying out these measures the prevention of tuberculous infection must be kept in mind and all possible exposures to the tubercle bacillus avoided. If the disease is already complicated by tuberculosis the case must be handled as if the primary condition was tuberculosis.

Prevention.—Preventive treatment is of much greater value than treatment after the disease has developed. First, every worker contemplating employment where silica dust is present should be given a careful physical examination to determine whether there is any abnormality predisposing him to silicosis. This examination should include roentgen ray of the chest to make sure that there is no old tuberculous infection or other pulmonary damage which would predispose the worker to silicosis. Next the physical examination should be repeated each year, with the roentgen ray of the chest also repeated, in order to detect at the earliest possible time the beginnings of any fibrosis of the lungs due to the inhalation of silica dust. If any evidence of pulmonary damage is shown by roentgen ray the individual must be removed immediately from the dusty atmosphere.

Various means are used to diminish the dust to which the workers are exposed. In many mines all blasting is done at the end of shifts, and before the new shift goes on duty there is a general spraying of the atmosphere with water. In buildings where the manufacture of asbestos, cement, or other silica bearing substances is carried on, cleanliness and forced ventilation with adequate exhausting of the dust laden air can keep the proportion of dust below a dangerous level. In many mines and industries where excessive quantities of dust are prevalent, automatic systems of water spraying run continuously. Respirators, which are mainly filters, have been used extensively but it is felt they do not exclude the finer particles under 2.5 microns in diameter which are responsible for the development of silicosis.

There should be continued investigation to determine the amounts of silica bearing dusts which can be borne without causing disease. Each substance causing such dust must be studied so that a standard may be set in each industry which will insure safety to the workers. This naturally will involve determination of the number of particles, the size of the par-

ticles, and the percentage of free silica in each dust. Any combination such as silica dust with alkaline soap powder which clearly increases the rapidity and severity of the fibrosis must be studied.

As soon as a definite standard of safety can be established for each industry, the states where these industries are active should adopt codes requiring control of silica dusts within the known safety limits. The methods of controlling the dust in the various industries should be studied and recommendations as to the possible means of control should be made in each specific industry. Whether the states should regulate the methods by which this safety standard is maintained or whether each individual industrial plant involved should be allowed freedom to maintain the standard by whatever means it found most practicable cannot be decided here.

Trust Company Building.

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DEVELOPMENT OF TETANUS ANTITOXIN FOLLOWING ADMINISTRATION OF TETANUS TOXOID

P. A. T. Sneath, Toronto, Ont. (*Journal A. M. A.*, April 21, 1934), states that of twenty-nine persons given three doses of tetanus toxoid, significant amounts of antitoxin developed in twenty-eight, a titer of at least 0.1 unit per cubic centimeter of serum being reached in the majority, or twenty. From five to seven months after the last dose there was, in general, a reduction in the antitoxin level, but twenty-seven still showed demonstrable antitoxin, the majority, twenty-five, showing 0.01 unit or more. This is further evidence that active immunization with tetanus toxoid might be adopted advantageously by certain groups in whom the hazard of tetanus is greater than in the general population.

HEMOLYTIC JAUNDICE UNIMPROVED BY SPLENECTOMY WITH ULTIMATE REMISSION FOLLOWING LIVER THERAPY

REPORT OF A CASE

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The following case of hemolytic jaundice is presented because of its severity, failure to respond to splenectomy, and the apparent effect of liver therapy in ultimately inducing a remission.

REPORT OF CASE

History.—A thirty-four year old white male was admitted to St. Joseph's Hospital, Boonville, Missouri, on March 4, 1932, complaining of weakness and supraorbital pain of two weeks' duration. There was no family history of jaundice and he had never been seriously ill or previously jaundiced until the present illness. His work for the preceding six years had consisted of installing cabinets.

Present Illness.—One year ago in Ohio he developed parasinusitis associated with jaundice and anemia which required hospitalization for several weeks. At this time he received no specific therapy for the anemia. His sinuses cleared and he gradually improved. Following this, because of residual weakness, he spent several months convalescing in the West. Since that time he felt fairly well until the present episode developed.

Physical Examination.—Revealed a poorly nourished middle-aged man with marked pallor, a lemon-yellow tint of the skin and conjunctivae, and moderate dyspnea. Temperature 98.8, pulse rate 120, respiration 28, blood pressure 100/80. Marked systolic murmur at the base of the heart. Spleen was palpable 2 cm. below the costal margin. Roentgen ray examination revealed cloudiness of all the paranasal sinuses.

Laboratory.—R. B. C. 0.81M., Hgb. 15 per cent, W. B. C. 15,200, Differential: Stabs 8 per cent, segments 80 per cent, lymphocytes 10 per cent, mononuclears 2 per cent, occasional normoblasts, and very few platelets. Urine contained urobilin but no bilirubin. Stools were dark. No free HCl in the gastric secretion. Kahn and Wassermann negative.

Course.—The accompanying chart indicates the major events in the illness of this patient. Following admission he received several blood transfusions with good response. However, a left otitis media appeared and on March 12 the left ear drum was lanced and both antra were drained. Following this, localized redness, swelling, and tenderness appeared in the left mastoid region and on March 15 a mastoidectomy was performed with removal of a portion of the mastoid cells which were necrotic. Hemolytic streptococci were isolated from the mastoid and from the antra. The infection in the mastoid and in the sinuses improved satisfactorily with drainage but the red count began to fall rapidly. Liver therapy was then given, the patient receiving 2 c.c. of liver extract intramuscularly for the next nineteen days. However, in spite of this and an increased number of transfusions the red count continued to fall rapidly reaching

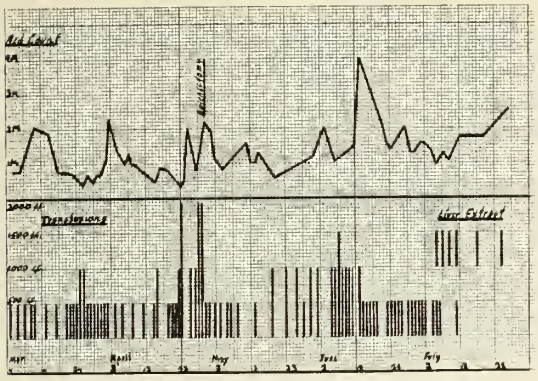

Fig. 1. Major events in prognosis.

430,000 on the eighth day of liver therapy with no indication of response. The spleen by this time having reached 10 cm. below the costal margin, 400 "r" units were delivered over this organ on March 26. In the next few days fluid began to accumulate in the left pleural cavity and on April 1, 600 c.c. of clear bile-colored fluid were removed. The irradiation was followed by a rapid rise in the R. B. C. which reached a peak of 2.35M. on April 2, 1932. The increase of R. B. C. was attributed to the roentgen ray rather than the liver because of its transient nature and on April 7 oral liver and iron, three tablespoons daily, were substituted for the intramuscular liver. This was continued as a general therapeutic measure and not as a specific form of treatment. From April 2 to April 7 the urine contained a trace of albumin but was otherwise negative. This gradually disappeared and did not reappear subsequently. The icterus index at this time was 272 and an immediate direct and a positive indirect Van den Bergh reaction was present. The jaundice by this time had become deep greenish brown. The fragility of the R. B. C. was not increased. By April 11 the pleural effusion had disappeared but the red count continued to fall, the spleen to enlarge, and a second irradiation producing no marked response, it was decided to remove the spleen. The frequency of the transfusions was increased as a preparatory measure. On April 17 a left pleural pain appeared associated with a slight unproductive cough and a temperature of 100.2. Fluid gradually accumulated in all the body cavities and on April 22, 900 c.c. of greenish-brown fluid were aspirated from the left pleural cavity and on the following day a similar amount was removed from the peritoneal cavity. A week later following the administration of 4000 c.c. of blood in forty-eight hours, a large firm spleen weighing 4400 grams was removed. The surface was smooth and dark red in color aside from several grayish-white infarcted areas. The liver and other viscera were grossly normal. A large amount of green fluid was found in the abdominal cavity.

Following splenectomy, the patient's condition improved for a few weeks. There was a greater tendency for the blood level to maintain itself, and the platelets began to increase in numbers. On May 9 a smear showed basophil 1 per cent, eosinophil 1 per cent, stabs 10 per cent, segment 61 per cent, lymphocytes 13 per cent, mononuclears 2 per cent. The normoblasts reached a peak at this time numbering 150 for each 100 W. B. C. counted. A small abscess developed in the mastoid scar which was opened on May 9 and drained for a few days, then subsided. The improvement was only temporary, however, and it again became necessary to resume transfusions at short intervals. On May 31 a continuous pain appeared in the region of the right scapula and persisted for three days. There was no associated abdominal symptomatology. On June 3, 1000 c.c. of fluid were removed from the abdominal cavity and 300 c.c. from the left pleural cavity. On June 9 phlebitis developed in the left leg following a thrombosis of the saphenous vein after its use in giving a transfusion.

An attempt was then made to improve the patient's general condition as much as possible by large numbers of blood transfusions and other supportive measures in the hope that eventually he would begin to respond. After giving 1000 c.c. daily for six days the R. B. C. reached 3.86M. but his general condition was not benefited and he lost ground in spite of receiving 500 c.c. of blood daily. It became increasingly difficult to transfuse him. His weight fell to approximately seventy pounds and he had several spells of extreme weakness associated with a thin rapid pulse. Numbness and tingling appeared in his extremities. Because of the phlebitis he could move very little in bed; the dyspnea resulting from the anemia, the ascites, and the pleural effusion gradually becoming very marked.

Although he had received liver and iron by mouth continuously in a fair dosage and had previously received liver intramuscularly, it was decided to repeat this procedure and beginning on July 5 he was given four injections of 3 c.c. of liver extract on alternate days. A rapid response occurred and was maintained. He received only one subsequent blood transfusion. His general condition improved rapidly and he was allowed to go home. He received additional injections at three to five day intervals for five weeks and following this all liver was stopped. His jaundice slowly faded. On December 26, 1932, he weighed 143 pounds. His blood showed R. B. C. 4.37M., Hgb. 68 per cent, W. B. C. 14,000. Differential: Eosinophils 1 per cent, stabs 5 per cent, segments 45 per cent, lymphocytes 43 per cent, mononuclears 6 per cent. The platelets were normal in number. Since then he has had counts done at monthly intervals. His R. B. C. have averaged 3.75M. and his W. B. C. 7900 with exceptions as will be noted.

During the first six months of 1933 he had two attacks of sinusitis yielding readily to local treatment but in each case associated with slight jaundice, a lowered R. B. C. and Hgb., and an increased W. B. C. In each instance improvement of the sinus condition was accompanied by a return of the blood to the level described above. In one instance the R. B. C. fell to 2.48M. and the W. B. C. rose to 15,800. When the

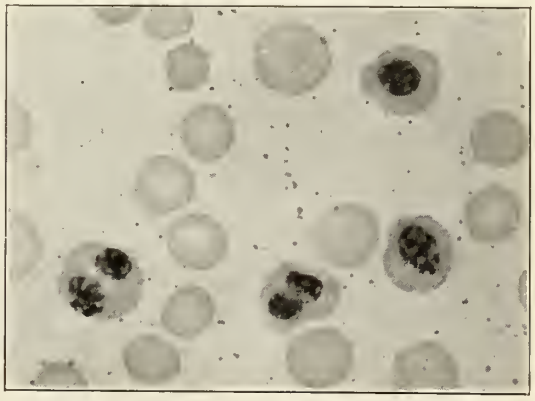

Fig. 2. Blood smear on May 11, 1932, showing four normoblasts, two of which are in mitosis. Magnified 1000 times.

nasal condition improved the reticulocytes rose to a peak of 32 per cent then fell rapidly and the R. B. C. returned slowly to normal. No liver was administered in any form. Attempts to reisolate hemolytic streptococci during these episodes failed.

When last seen on September 5, 1933, he was in fairly good condition and had been selling life insurance. At this time his blood showed W. B. C. 6900, R. B. C. 4.06M., Hgb. 73 per cent, and a normal smear. His fragility was again normal.

DISCUSSION

The diagnosis in this case was initially considered to be either pernicious anemia with a blast crisis, the picture being distorted by the presence of infection, or acquired hemolytic anemia secondary to infection. In favor of the former was the profound anemia, icterus, palpable spleen, color index of 1, low white count (following drainage of the sinuses), a consistent blood smear, absence of free HCl and a normal fragility test. However, as the spleen continued to enlarge, with a rising white count and a failure to respond to intramuscular liver, pernicious anemia was felt to be an unlikely explanation.

An attempt was then made by transfusions and roentgen ray therapy to the spleen to tide the patient over until a remission would render splenectomy a reasonably safe procedure. The fulminating character of the process did not permit this, however, and the spleen was removed with unfortunately no resultant improvement. His condition progressively became worse until he received intramuscular liver extract with a concomitant remission.

In general, cases classified as hemolytic jaundice constitute a loosely knit group in which there is acholuric jaundice, splenomegaly, microcytosis with a color index near one, many normoblasts in the smear, high icterus index, moderately increased white count, and an increased fragility of the red cells. Frequently there is a previous history of jaundice or of hemolytic crises. Increased fragility is singly the most distinctive characteristic but even it may not always be present[1, 2, 3] as in this case. Giffin, who has seen a great number of these cases, feels that in the absence of typical blood findings, they should not be classed as hemolytic jaundice[3] and that probably all true cases of the disease are congenital in origin. It is possible that in the future a new classification will be devised. Therapeutically, splenectomy gives relief of symptoms in a high percentage of cases. However, there are sufficient cases both of the congenital and the acquired type in which hemolytic crises occurred or persisted after splenectomy to indicate that the spleen alone is not at fault[3, 5, 6, 8] and that other portions of the reticulo-endothelial system may play a part.[4, 7]

Liver therapy has probably received many trials in hemolytic icterus. In the average case it seems to be of no value. There have been reported two cases, however, in which it apparently initiated a remission. A twenty-three year old electrical engineer treated by Ordway, with a red count of 0.83M., Hgb. 25 per cent, reticulocytes 40 per cent, normoblasts 1.4 per cent, W. B. C. 10,000, icterus index 120, fragility range 0.50 per cent to 0.48 per cent NaCl, and a spleen down four fingers, made an uneventful recovery on four vials of oral liver extract daily.[1] Following this he was not seen until three years later when he reappeared in a moribund condition with a hemolytic crisis. He had taken no liver during the interval.[10] A similar case has been reported by Minot.[9]

In the case reported here it is difficult to draw conclusions. Although the patient received adequate amounts of presumably potent liver extract early in the disease with no improvement, it may be that a response was inhibited by the presence of infection or that the extract differed in some particular from the other preparation which was subsequently used. Failure to respond to the oral liver extract which he received over a long period may be correlated with similar situations occasionally observed in pernicious anemia and due apparently to inadequate absorption, inadequate dosage, or both. There is, of course, no way of knowing how long prior to the actual inauguration of the intramuscular therapy for the second time a similar response would have been obtained.

After the remission was initiated, liver therapy was stopped completely for ten months. During this period he had three hemolytic crises of slight severity with spontaneous remission. He was then placed on oral liver extract in adequate amounts but this did not prevent a fourth hemolytic incident. It remains to be seen whether intramuscular extract will prevent similar occurrences.

It is felt that in general in the treatment of pernicious anemia, blood transfusions are contraindicated because of a depressant effect upon the bone marrow. In this case after having received one hundred and eight transfusions of 500 c.c. each in a period of four months, improvement came as rapidly when the remission began as is usually observed in adequately treated cases of pernicious anemia, particularly if one considers that the red cell level before the cessation of the transfusions was a distinctly artificial one.

In administering the transfusions when more than one was given daily, not more than 500 c.c. were usually given at a time. There were very few reactions. Occasionally hives would follow and once a mild state of intoxication fol-

lowed the administration of blood from an individual who had been drinking and in whom the condition was not recognized. The patient's blood type remained the same throughout, Jansky type II. In general, the objective finding which governed the number of transfusions was dyspnea, which was usually relieved very promptly.

CONCLUSIONS

1. Splenectomy may be insufficient to induce remissions in fulminating cases of hemolytic jaundice.

2. Repeated blood transfusions apparently have no harmful effect on the bone marrow in this condition.

3. Certain cases which may or may not be true hemolytic jaundice respond to liver therapy.

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FAILURE OF LIVER THERAPY IN PERNICIOUS ANEMIA

REPORT OF CASE

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AND
ARTHUR H. WELLS, M.D.
KANSAS CITY, MO.

It is realized that the correctness in diagnosis of a case of pernicious anemia which failed to respond to liver therapy might be questioned. Carey,[1] McCrie,[2] Kamp,[3] Hampson,[4] Holmes,[5] Sturgis,[6] Kennedy[7] and Schilling[8] have reported ninety-one cases where treatment with hepatic substance failed. Authorities,[9] who studied the history, physical examination, laboratory data, necropsy findings and microscopic sections of the bone marrow in our case agreed on the diagnosis of pernicious anemia.

REPORT OF CASE

History.—Mr. J. C. R., aged 64, a sheet metal worker, entered Research Hospital December 19, 1931. He had lost strength for six months and the thigh muscles had become weak and stiff. Appetite was poor. Loss or gain in weight was denied. Occasional spells of nausea and vomiting. Bowels moved once daily without laxatives. Hemorrhoids would protrude and become painful. Several times a year small amounts of bright blood appeared in the stool. Exertion brought on dyspnea. Numbness of hands occurred frequently accompanied by tingling sensations. At various intervals vesicles appeared on the tongue and made it sore.

Physical Examination.—Lemon tint of the skin. Mucous membranes and conjunctiva pale. Tongue glossy and considerable atrophy of the fungiform papillae. No areas of impaired resonance, râles or pleural friction rubs in either lung. Cardiac borders within the normal limits as to size, shape and position. Heart rate and rhythm normal. Spleen barely palpable. There were three internal hemorrhoids. Bone vibratory sense absent over the tibiae. Right knee jerk slightly exaggerated. Blood pressure in millimeters of mercury was 128 systolic and 58 diastolic. The patient weighed 144 pounds (65.4 kg.). Temperature 98.6 F.; pulse 80; respiration rate 20.

Laboratory Examination.—The erythrocytes numbered 1,300,000 per cubic millimeter; hemoglobin 37 per cent (Haden); color index, 1.42; volume index 1.037; reticulocytes 1 per cent; bleeding time one minute; coagulation time four minutes. Fragility test: Initial hemolysis at 0.42 per cent; complete at 0.28 per cent, showed a definite tendency of an increased resistance of the red blood cells. The leukocyte count was 2,950; neutrophils 59 per cent; small lymphocytes 40 per cent; basophils 1 per cent; marked poikilocytosis, slight anisocytosis.

Van den Bergh tests, direct and indirect, negative. Each 100 c.c. of blood contained: Sugar 92 mg.; nonprotein nitrogen 36 mg.; creatinine 1.8 mg. Urine contained a trace of albumin and several finely granular and hyaline casts but no blood or urobilin. Gastric contents contained occult blood but no free hydrochloric acid. Combined acidity was 15. An alcohol test meal with histamine injection failed to produce any free hydrochloric acid. Stools were slightly positive for occult blood but no ova or tapeworm segments were found.

Roentgenologic Examination.—This study was made by Dr. Ira H. Lockwood. The gastro-intestinal tract showed no positive evidence of an organic lesion. No closed infections at the apices of any of the teeth and accessory sinuses showed normal transparency.

Treatment.—A diagnois of pernicious anemia was made December 23, 1931, and patient placed on Murphy-Minot diet.* At meals he took 2 drams (8 c.c.) of dilute hydrochloric acid in a glass of orange juice.

The various hematopoietic agents taken and some of the more representative blood counts are shown in table 1.

After an initial response to liver therapy the patient's general condition as well as the blood elements began to decline. Because of the painful hemorrhoids, which also occasionally bled, hemorrhoidectomy under caudal anesthesia was performed March 11, 1932. Considering the

* From 2000 to 4000 grams of raw or cooked liver were taken daily for 10 months.

Table 1. *Effect of Hematopoietic Agents on the Blood Elements*

Date	Therapy	Red blood cells	Hemoglobin per cent	Color index	Reticulocytes per cent
12/19/31	*Liver extract, orally	1,300,000	37.0	1.42	1.0
1/16/32	Liver extract, orally	2,130,000	38.5	0.90	1.5
3/ 5/32	Liver extract, orally	1,550,000	34.0	1.07	1.1
3/13/32	†Blood transfusions	3,260,000	52.0	0.79	1.3
3/16/32	‡Ventriculin	2,800,000	54.0	0.95	1.6
4/12/32	Ventriculin	1,910,000	38.5	1.00	1.2
4/15/32	§Intravenous liver	2,550,000	47.5	0.93	1.3
5/ 4/32	Intravenous liver	1,080,000	24.5	1.13	0.9
6/22/32	Blood transfusions	3,200,000	55.0	0.85	1.7
7/ 8/32	¶Equine liver	2,200,000	44.0	1.00	1.4
7/18/32	Equine liver	1,695,000	35.0	1.03	1.0
8/ 6/32	Blood transfusions	2,800,000	45.0	0.80	1.5
8/19/32	Equine liver	2,050,000	40.0	0.97	1.2
9/16/32	Blood transfusions	2,815,000	44.0	0.78	1.4

* Eli Lilly and Co. Content of one vial is equivalent to 100 grams of fresh liver. (9 vials of extract No. 343 were taken daily for 11 weeks.)

† From March 7, 1932, to October 17, 1932, there were 12 transfusions, each of 500 c.c. of whole blood.

‡ Parke, Davis and Co., 10 grams represent 120 grams of fresh stomach tissue. (40 grams were taken daily for 6 weeks.)

§ Parke, Davis and Co., 20 c.c. ampule represents 100 grams of fresh liver. (20 c.c. were given intravenously at weekly intervals for a month.)

¶ Chappel: 2.5 c.c. are equivalent to 25 grams of fresh liver. (2.5 c.c. were given subcutaneously each day for 6 weeks.)

possibility of a secondary anemia from chronic hemorrhage iron was administered orally and intramuscularly. This did not increase the erythrocytes or hemoglobin.

October 22, 1932, the patient complained of precordial pain. Medium course râles were heard posteriorly over the lower lobe of the left lung. There was dullness over both lung bases. Only one cardiac sound was audible. Temperature was 102 F.; pulse 100; respiration 30; 2,600,000 red cells; hemoglobin 52 per cent; color index 1.01; white cells 6500. The patient became weaker and expired October 27, 1932.

Postmortem.—Significant changes were found in the heart and bone marrow. In the heart both pericardial surfaces were covered by a thick, grayish, fibrinous exudate from which staphylococcus albus was cultured and demonstrated in paraffin sections. The pericardium also showed a marked injection of vessels and a neutrophilic infiltration. Except for slight fatty degeneration of the myocardium there were no other changes in this organ.

The bone marrow of the ribs, sternum, bodies of vertebrae and ilium was strikingly hyperplastic in the gross, having a rich dark reddish brown color and filling the cancellous portion of the bones. Microscopically, this marrow was unusually cellular and composed for the most part of blood cells and a few cells of the granular series. In sharp contrast was the yellow marrow of the left tibia. It was with difficulty that any hematogenic tissue could be found in this fatty yet vascular tissue.

Incidental findings of slight atelectasis and congestion of the lower lobes of the lungs, moderate congestion and hemosiderin deposit in the spleen and generalized reticular cell proliferation of lymph nodes were noted. The brain and spinal cord showed no changes. A careful search revealed no evidence of malignancy.

DISCUSSION

The great variation of changes in the marrows of different bones in cases of pernicious anemia is conclusively demonstrated by Davidson and Gulland.[10] Peabody[11] has shown that the process of marrow hyperplasia characteristic of pernicious anemia in the vertebrae, ribs and flat bones spreads peripherally to the femur and later to the tibia. The results of the work of either of these authorities explains the fatty tibial marrow in our case. Marrow of the long bones in adults is normally fatty excepting for a small island of red marrow at the upper end of the femur. The hyperplastic marrow in the flat bones examined in our case would have been sufficient to maintain a normal red cell count if the megaloblasts had matured and had been delivered to the blood stream.

We do not wish to disparage the use of potent liver extract. It is hoped that many of us have not been too enthusiastic in our expectations of the newly found "specific" in medicine. All that really happens in a patient with pernicious anemia under treatment with liver substance is that a prolonged remission in the condition of the blood is established which continues only as long as the liver is administered. When the hepatic substance is discontinued, the blood relapses. Existence of a small proportion of unsuccessful results to liver therapy materially alters the prognosis of Addison's anemia. Above all, it imposes the necessity of withholding the promise of a hopeful outlook until the effect of liver treatment has been observed for a sufficient period. It can hardly be expected that liver should prevail against every case of pernicious anemia.

CONCLUSION

A case of pernicious anemia is reported which failed to show the slightest reticulocyte response or other improvement following the use of any of the more recently advocated potent forms of treatment.

520 Professional Building.

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SPECIAL ARTICLE

REMARKS AT THE UNVEILING OF THE HODGEN MEMORIAL PLAQUE COMMEMORATIVE OF THE LIFE OF OUR FOREMOST SURGEON, DR. JOHN THOMSON HODGEN

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ST. LOUIS

I feel deeply honored as president of the Medical Fund Society in being permitted to say a few words on this auspicious occasion when we are met to pay well earned tribute to the ideally spent life of our foremost surgeon, Dr. John Thomson Hodgen.

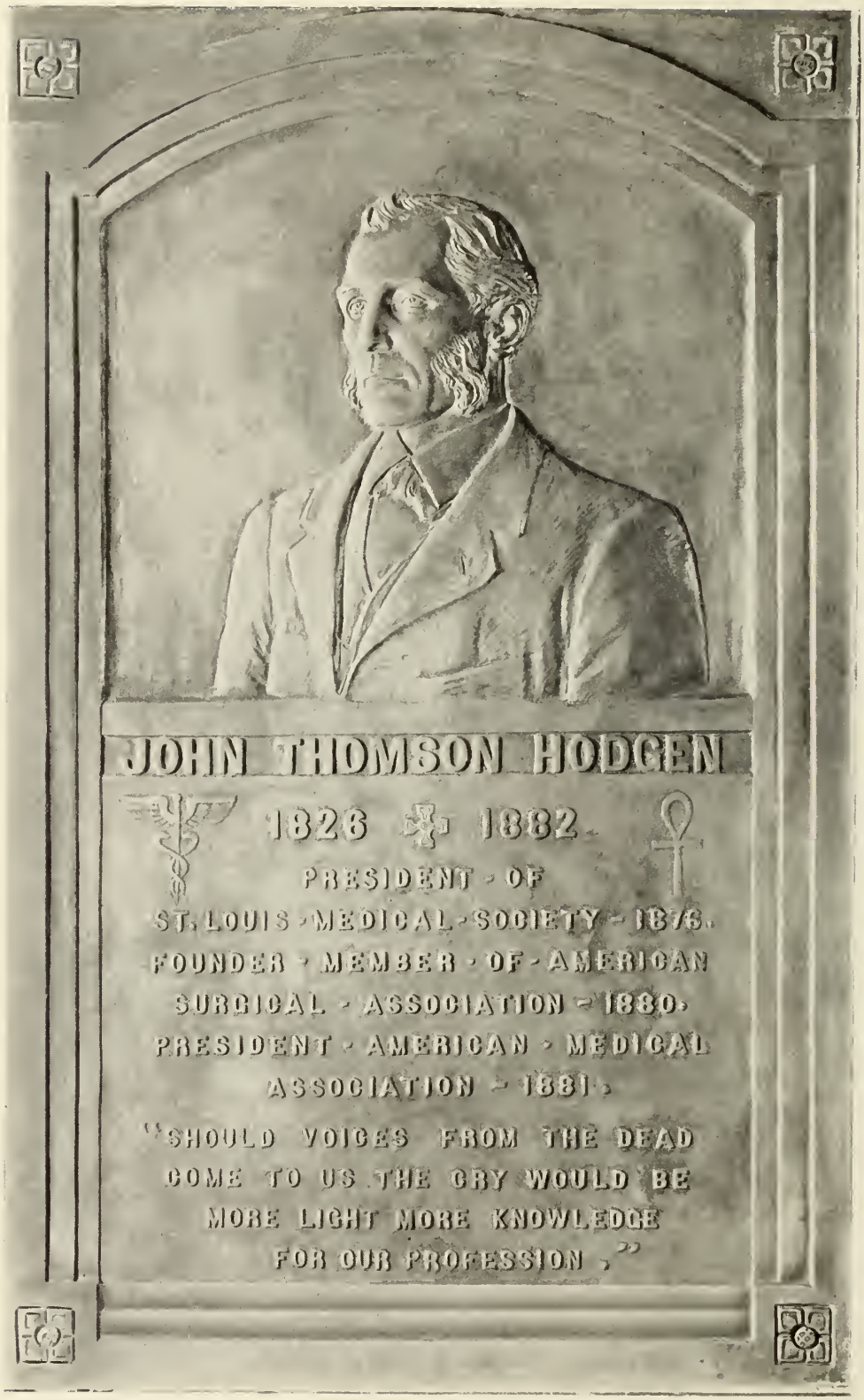
Allow me first briefly to tell you something not only of the trials and sacrifices of a little band of eight men constituting the charter members of the Medical Fund Society, of which Dr. Hodgen was a moving spirit, in their early strenuous efforts in acquiring and retaining the property and building of the St. Louis Medical College under which name this school was incorporated in 1855, but also their pioneer efforts for higher medical education in this country. How this property was acquired from the estate of Dr. Charles A. Pope, prior to his death, dean and owner of the college property, through the eight members of the Medical Fund Society donating, minus the cost of operation, all their earnings for four years' work as teachers in the faculty of St. Louis Medical College, then an independent school with no university connection or endowment and therefore entirely dependent for support on the students' tuition fees. This, of course, was a most generous and sacrificing act on the part of this small body of men which, however, was later destined to make a second and in a way a still more noble sacrifice, and which is the one we especially desire to accentuate briefly.

The Medical Fund Society was incorporated in 1872, the articles of incorporation being signed by the following men as charter members and at the first meeting thereafter they were elected to office as follows: President, A. Litton; 1st vice president, J. B. Johnson; 2nd vice president, John T. Hodgen; secretary, J. S. B. Alleyne; treasurer, E. F. Smith; L. Ch. Boisliniere and John J. McDowel, not holding office at that time.

That these men who formed the Medical Fund Society anticipated in some measure at least the future changes in medical education is attested by the statement of its purposes in the articles of incorporation. While its primary object was the purchase of the college property from the estate of Dr. Pope one of the articles further stated that "Its accumulations and acquisitions shall be held and administered by it as a trust fund for the promotion of medical and surgical science by providing for students in medicine and surgery the opportunity of receiving thorough instruction in the principles and practice thereof and in the allied natural sciences." In accordance with the spirit of the above articles of its incorporation the Medical Fund Society acting through the medium of the St. Louis Medical College was the fourth school in these United States to establish in 1879 an optional and in 1880 a three year obligatory graded course, 12 years before any other school in this vicinity dared to take such a step. For according to "Garrison's History of Medicine," the Harvard Medical School was the first in our country to adopt (in 1871) a three year graded course; the University of Pennsylvania and Syracuse Medical School taking this same step in 1877 while the Ann Arbor Medical School and the St. Louis Medical College followed in 1880 the latter having made the three year graded course optional in 1879 and obligatory in 1880; however, neither in the publication of the Harvard Medical School dated 1782 to 1906 nor in "Garrison's History of Medicine" is it stated when the Harvard Medical School, the University of Pennsylvania Medical Department, the Syracuse Medical School or the Ann Arbor Medical School insisted on their three year graded courses being obligatory.

Of course, with these demands for graduation by the St. Louis Medical College the attendance on its classes rapidly diminished until the students' tuition fees were not sufficient to sustain the college operating expenses, when this little courageous band of the Medical Fund Society again made even a greater sacrifice, this time not to acquire property but solely to maintain an altruistic idealism, that of ringing true to the article of their association for the promotion of medical and surgical science. Not only did they contribute from their earnings as teachers but were finally obliged to mortgage the college property, and even to assume the risk of their institution failing, due to the great competition of the surrounding two year schools. Fortunately, however, their classes began later on to increase and finally, but not until twelve years later were the competing schools forced also to adopt the three years graded course.

After this momentous work by this small group of courageous and idealistic men they


JOHN THOMSON HODGEN
1826 1882
PRESIDENT · OF
ST. LOUIS · MEDICAL · SOCIETY · 1876
FOUNDER · MEMBER · OF · AMERICAN
SURGICAL · ASSOCIATION · 1880
PRESIDENT · AMERICAN · MEDICAL
ASSOCIATION · 1881
"SHOULD VOICES FROM THE DEAD
COME TO US THE CRY WOULD BE
MORE LIGHT MORE KNOWLEDGE
FOR OUR PROFESSION."

continued to function through the Medical Fund Society which organization in 1881 erected a building adjacent to the old St. Louis Medical College for out clinic instruction and later was responsible for the then new handsome quarters of the St. Louis Medical College at 18th and Locust Street completed in 1892 under the direction of a committee composed of Drs. John Green, H. H. Mudd and G. Baumgarten. The self-sacrificing idealism of this little group of noble men, however, finally found their hopes and aspirations fully crowned in the attainment of their final goal, the union of their beloved St. Louis Medical College in 1891 with the Washington University as its Medical Department, and in the manner hereafter to be described by Dr. Henry Hodgen Mudd, who succeeded his uncle, Dr. Hodgen, as dean of the St. Louis Medical College and also as one of the moving spirits of the Medical Fund Society. The Missouri Medical College also became united with the Washington University as a part of its Medical Department in 1899.

This wonderful organization, The Medical Fund Society, moreover still continues to carry on in the interest of the uplift of the medical profession as it is now doing in association with the St. Louis Surgical Society in commemorating the life work of our great John Thomson Hodgen in the Hodgen Lecture and in this as in other efforts in the promoting of medical and allied sciences it will continue so to function as long as conditions make its high aims possible.

As gradually member after member of this grand old group composing the charter members of the Medical Fund Society answered the last summons their successors were elected in the following chronological order: James W. Clemens, Gustav Baumgarten, Henry H. Mudd, W. E. Fischel, Robert Luedeking, John Green, J. M. Scott, John P. Bryson, George Homan, B. J. Primm, F. A. Glasgow, Charles Nagel, F. R. Fry, Henry Schwarz, H. G. Mudd, J. B. Shapleigh, Greenfield Sluder, N. B. Carson, A. E. Ewing, Elsworth S. Smith, Walter Baumgarten, Walter Fischel, R. J. Terry, John Green, Jr. The last five names together with those of Drs. F. R. Fry and Henry Schwarz constitute the present surviving members.

Is not this an example of altruism hard to surpass?

While our recollection of Dr. Hodgen dates back to childhood it was never our good fortune to come under the influence of this magnetic man as our teacher for his demise antedated several years my matriculation in the St. Louis Medical College as a student. So I shall now call on those of his contemporaries who were closely associated with him in work during his busiest years to speak of him as man and surgeon, and among those we feel no one was closer to Dr. Hodgen as friend and confrere than Dr. Elsworth F. Smith—meeting each other for the first time immediately after graduation as the first two interns appointed to the St. Louis City Hospital, Dr. Hodgen from the Missouri Medical College and Dr. Smith from the St. Louis Medical College. Theré at the old City Hospital was deeply cemented a friendship which remained true and constant for the remainder of their lives, and this friendship was especially quickened as Dr. Hodgen later on came to occupy the chair of clinical surgery and Dr. Smith the chair of clinical medicine at the St. Louis Medical College, which positions being both of a clinical character naturally tended to a closer interweaving of the lives of these two most intimate friends. It therefore was but natural that on opening his course on clinical medicine in the fall succeeding the death of his beloved colleague, Dr. Hodgen, the previous spring, that Dr. Smith should devote a few moments to give expression to the irreparable loss to him personally and to the nation, state, city and St. Louis Medical College, in the death of so wonderful a man, and from his remarks on that occasion I now quote briefly from his original manuscript:

> The hour weighs heavily on me with sadness, for the opening of the session of 1882-1883 is palled by the death of one of the most noble and gifted of its faculty, its late dean, the late Professor John T. Hodgen. In the noon-tide of life, in the zenith of his reputation, the meridian of his usefulness, he fell harnessed in the discharge of duty, the pride of his adopted city, the cherished idol of his profession. Words are inadequate to express a bereavement so inconsolable, a loss which is a public calamity and irreparable to the St. Louis Medical College, for the ruthless hand of Death could have immolated no more precious victim; the profession could have yielded no votary in whose spirit burned more pure love for science than animated his frame.
>
> How he studied with minuteness that portion of surgery which occupied so much of his thought during his whole medical career, Conservative Surgery, which made the theme of his inaugural address as president of the American Medical Association.
>
> Dissatisfied with the surgical line of treatment inculcated by authors of gunshot fractures of the femur more particularly necessating immediate amputation, he determined by clinical experiment to see if nature by her conservative efforts aided by surgical means was not competent to consolidate these fractures by ossific union. His preconceived opinion was fully substantiated by observation, and he had the proud satisfaction of saving many a life and limb by temporizing treatment, by giving nature time and opportunity to effect her healing process.
>
> This line of procedure in the treatment of gunshot fractures of the thigh I consider one of his most invaluable contributions to modern surgery. There was no surgeon who relied more upon the conservative efforts of nature in the treatment of

disease and injury than he. This he inculcated no less in precepts to his medical classes than he exampled in his practice. His matured judgment, however, enabled him to trust nature as far as it was safe to temporize, for his quick eye of discernment soon caught change of local and constitutional conditions which indicated interposition of medical and surgical resources.

As a lecturer he was eminently lucid and practical. His knowledge being thorough of his subject, he had the happy faculty of imparting it to his students so clearly that their minds readily seized and assimulated it to their mentality.

As an operator, he was cautious, dexterous and decisive. The difficulties of a case never seemed to surprise or overwhelm his judgment. He had resources at command adequate for any emergency.

Nature cast John T. Hodgen in no ordinary mould, this model man, whose character was right is might, this friend of humanity though dead, yet lives; in the sublimity of his composition he reflected such resplendent traits in his beneficent ministrations to suffering humanity that his name is eternized; for his deeds are mirrowed in thousands of human beings who are living monuments of his medical and surgical skill.

Dr. Henry Hodgen Mudd, a brother of the late Dr. Harvey G. Mudd and a nephew of Dr. Hodgen and his partner during his busiest years of surgical practice, who also succeeded his uncle as dean of the St. Louis Medical College and as professor of clinical surgery, was certainly in most intimate contact with his partner for a long period of time and in an address on the unveiling of a portrait of Dr. Hodgen at a meeting of the members of the Alumni Association of all the departments of Washington University on April 10, 1895, spoke as follows*:

Rich as was his life in the work accomplished, widely extended as was his reputation as a skillful surgeon, and though recognized as the most attractive and popular medical teacher in the Mississippi Valley, it was only by those who walked with him in his daily life that the fullness and strength of the simple majesty of his nature could be fully realized.

On the resignation of Dr. Charles A. Pope in 1865, he was made dean of the College. But it was as a teacher of medicine and as a practical surgeon that he was known to the community. The contributions made by him to clinical surgery were many and valuable. For thirty-three years he was a teacher. He was a keen and accurate observer and his interest was not limited to the sick room. He was alert to all the phenomena of life, whether in the field, the air or in humanity. He was a student of nature, quick to grasp and interpret its laws aright. As a boy he could make the best kite that floated in the air, as a man he had that ready adaptability to his surroundings that enabled him to meet every emergency of life with ease and grace that told of the latent power which comes of profound knowledge, of widely extended sympathy, of great physical strength and mental activity. He had the happy faculty of grasping with each fact the general law upon which it was based. He read books, not for the dry facts told upon their printed pages, but to assimilate such wisdom as the authors possessed. A fact, however dry and uninteresting it might appear to the ordinary man, became illuminated with a halo of truth as he turned it over in his active brain to weigh, assort and classify. If it was remembered and stored away in his mind it illustrated some law or suggested some possibility which his imagination was quick to utilize. He did not acquire facts in a pedantic way; they became living truths awaiting application in his everyday life. They were a part of the man and found their usefulness in most unexpected places. This ability to sift and assimilate knowledge together with his wonderful capacity for work made him an exceedingly wise man. It was the true wisdom of a master mind. Fortunately for us his love of nature's laws, his capacity for study and his adoration of the sublimity and beauty of truth only strengthened his devotion to humanity. Humbly and quietly he walked among us. Awakening in those whose personality he touched new fields of thought and giving that truest touch to friendship which arouses in others the best of which they are capable.

This was the secret of his power over others. He put them to their best. Had they high ideals he pointed to something better. This he did without oppressing them with his personality and without overawing with the strength of his genius.

His wonderfully active sympathy with every phase of human nature, its comedy and its tragedy gave him power of illustration, which fixed facts in the minds of the hearer in a way to make them truths not to be forgotten. In the east, in the west, in the north, in the south, his fame as a teacher is a glory to St. Louis. His students passed from under his influence with love and veneration for the man who had imbued them with better thoughts and higher aims; not oppressed by his wisdom but enlightened by the truths he exemplified. His influence as a teacher, however, was impressed not only upon individuals; it also controlled institutions. Fifteen years ago while he was a potent factor in shaping its course the St. Louis Medical College established an advanced standard of work, which no other institution of this city dared to attempt until twelve years later.

The high standard of the work of Washington University and the steady advance in the demands of the St. Louis Medical College not only on the qualifications of the students but upon the earnestness and unselfishness and capacity of its teachers finally led to the union of the two institutions in the way that Dr. Hodgen anticipated and desired. It was a part of his conception of a perfect medical college that it should be a part of a university and reflect university culture, and thus be enabled to influence its surroundings and upbuild itself by hospitals that should serve the highest aims of the best thought of humanity in the relief of the suffering and in the education of men.

He made for himself a place unique in the profession. No one before had so clearly obtained first place in the hearts of the people and the profession. The conditions now existing can never evolve a man of such wide and varied capacity. But man is for a brief time; he was cut off in the prime of life and in the zenith of his fame.

As a great teacher and a great surgeon he exemplified the genius of humanity whose qualities abide from generation to generation, and speak only now and then in the process of time in the individual. Dr. Hodgen's last public speech was made before the Washington University Alumni. That speech was the echo of his life's striving—a cry for more "knowledge" and more "light."

* Extracts from a copy of Dr. Henry Mudd's original manuscript which he presented to the author.

Dr. Hodgen died in the prime of life; we can only hope that the university and its departments may further honor him by continuous effort for thorough work and thus perpetuate the spirit of his life.

In an appreciation of Dr. Hodgen by Dr. I. N. Love in the *Medical Mirror* Dr. John Green, the late eminent oculist and professor of ophthalmology in the St. Louis Medical College, also a close friend of Dr. Hodgen, paid the following brief, but forceful tribute to his departed friend:

Dr. John T. Hodgen an honest man in the fullest and highest acceptation of the word; just to all men, but with a justice always tempered by charity; ever true to his convictions of right; loyal in his friendship and never feeling that a debt of friendship could be satisfied by any acts of formal repayment, however many times repeated; tender as none could know until they had been comforted by him in sickness and sorrow; wide in the accumulated richness of knowledge garnered from much thoughtful study of books, but much more from the direct study of the human frame in its ever varying condition of health and disease. Dr. Hodgen was the staff upon whom the strongest and wisest as well as the poorest and weakest had leaned for support in times of great trial, and the support was never withheld, never failed him who stood in need of it. There are those who attract by a certain smoothness of manner, even though we may feel that treachery lurks behind the smile. Dr. Hodgen won and held the esteem and love of men by being always true and always helpful. That he was honored much and deservedly we all know; how deeply he was loved was known only to those, and how many there are, who had learned to love him for his own sake, and these a crushing sorrow makes dumb. They mourn a loss irreparable.

"Garrison's History of Medicine" mentions John Thomson Hodgen (1826 to 1882) who devised many instruments and apparatus, in particular his wire suspension splint for fractures of the femur and forearm which are still in use.

"Park's History of Medicine" speaking of the prominent American surgeons of the last century includes the name of Dr. John Thomson Hodgen.

From these peans of just praise which well up as from a fountain from the contemporaries of their and our idol we cannot but feel that we the St. Louis Surgical Society and the Medical Fund Society are merely linking the echoing voices of the past with those of the present and future in now presenting to the St. Louis Medical Society as custodian this bronze plaque marvelously wrought by the skilled hands of Miss Malvina Hoffman in perpetuation of the memory of the late Dr. John Thomson Hodgen, and with the hope that the self-sacrificing and helpful efforts of this grand man in the cause of suffering humanity may even outlive bronze, canvas and marble in the hearts of succeeding generations.

"HEAVY WATER" AND TUMOR GROWTH

The experiments of William H. Woglom and Lawrence A. Weber, New York (*Journal A. M. A.*, April 21, 1934), with sixty mice indicate that deuterium, in the amounts that it was possible to administer as "heavy water," had no demonstrable effect on the growth of mouse sarcoma 180 or mouse carcinoma 63. In order to be certain that the deuterium had been absorbed by the mice and by their tumors, the proportion of deuterium to normal hydrogen in the water that these contained was determined by measuring its refractive index.

MONILIASIS OF THE SKIN IN DIABETES

E. F. Traut, Cleveland White and R. B. Hemphill, Chicago (*Journal A. M. A.*, April 21, 1934), present two cases of diabetes complicated by infection with Monilia. The first patient received the usual fungicides without improvement; instead, the condition became much aggravated. The allergic constitution previously manifested by urticaria and the precocious endarteritis probably contributed to the severity of the fungous disease. The second, older, patient also had a predisposing obliterating endarteritis. This patient showed the "id" reaction to the fungous toxin about the eyebrows. He had received no treatment prior to admission to the hospital. Both patients responded rapidly to competent diabetic management without local fungicidal medication. Therefore competent diabetic management seems to be the deciding factor in the treatment of Monilia infection of the skin in cases of diabetes.

HYPERPARATHYROIDISM: A COMMON AND POLYMORPHIC CONDITION AS ILLUSTRATED BY SEVENTEEN PROVED CASES FROM ONE CLINIC

It is the object of Fuller Albright, Joseph C. Aub and Walter Bauer, Boston (*Journal A. M. A.*, April 21, 1934), to point out that other forms than osteitis fibrosa cystica of hyperparathyroidism are not rare pathologic curiosities but conditions that every practitioner will not infrequently meet. The diagnosis must be considered and ruled in or out when any of a whole list of presenting symptoms of the most varied nature is encountered. They present seventeen cases that form the basis of their study in all of which a parathyroid tumor was removed in each instance. They can only partially account for the large series by the fact that a special study on bone metabolism was being conducted. They divided the symptomatology into that due to hypercalcemia alone, that related to skeletal changes and that related to the increased excretion of calcium and phosphorus in the urine, and in their discussion they lay emphasis on the different forms which the disease may take, the pathologic changes and pathologic physiology, the signs and symptoms, the laboratory diagnosis, the roentgen diagnosis, the treatment and the differential diagnosis. They wish to stress the point that, whereas the disease can hardly be called common, it must frequently be considered when any of a multiplicity of symptoms is present. Failure to make the diagnosis is regrettable in that therapy for it is highly successful. Of the seventeen cases three were of the classic type, six presented nephrolithiasis, two were osteoporotic with nephrolithiasis, one osteoporotic, one nephrocalcinotic, one classic with nephrolithiasis, one classic with nephrocalcinosis and nephrolithiasis, one simulated Paget's disease with nephrolithiasis and one was osteoporotic with nephrocalcinosis.

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MAY, 1934

EDITORIALS

THE ST. JOSEPH SESSION—77TH ANNUAL MEETING

The Missouri State Medical Association will convene for its Seventy-Seventh Annual Session in St. Joseph, May 7, 8, 9 and 10 at the Robidoux Hotel. In 1920 the Association met in St. Joseph in a successful session and the enthusiastic and whole hearted work being done by the committees and the St. Joseph members give promise of another successful session.

While the numerous details necessary to the arangements for the convention and the planning of social entertainment are being efficiently worked out by the Buchanan County members the Program Committee has prepared a scientific session which we feel is especially valuable. Papers will be presented on Tuesday, Wednesday and Thursday of the Session as in former years.

The conspicuous success of the sessions on Tuberculosis and Diseases of the Eye, Ear, Nose and Throat on Thursday at the Kansas City Session has induced the Program Committee at the request of the sponsors of these two divisions of medicine to repeat the arrangement at the St. Joseph Session. The Tuberculosis Session will be under the direction of Dr. George H. Hoxie, Kansas City, and the Session on Diseases of the Eye, Ear, Nose and Throat will be directed by Dr. John Green, St. Louis. While papers and demonstrations at these sessions are devoted to the diseases mentioned the discourses have been prepared with the view of conveying to the general practitioner and those in other special lines information that will be important for them to receive. It is hoped therefore that both of these sessions will be attended by many members whose practices may be in a general field or in other special fields.

While the Session on Tuberculosis is being held in the Crystal Room of the Robidoux Hotel on Thursday morning an additional attraction will be presented on the Mezzanine of the hotel in the form of diagnostic clinics on diseases of the eye, ear, nose and throat. Two eminent guest speakers have consented to present these clinics and one fellow member will present a third. These are Dr. Charles M. Swab, Omaha, professor of ophthalmology, Creighton University School of Medicine; Dr. Dean M. Lierle, Iowa City, professor of otolaryngology, State University of Iowa College of Medicine, and Dr. Orval R. Withers, Kansas City.

Our other distinguished guests are Dr. Walter L. Bierring, Des Moines, President-Elect, American Medical Association; Dr. John H. Musser, New Orleans, Vice President, American Medical Association; Dr. G. H. Ewell, Madison, Wisconsin, of the Jackson Clinic, and the Reverend Father Alphonse M. Schwitalla, S. J., St. Louis, dean of the St. Louis University School of Medicine. Drs. Bierring and Musser will conduct diagnostic clinics in addition to reading papers on scientific topics. Dr. Ewell will also deliver an address at a scientific session and the Reverend Father Schwitalla will deliver an address at the open meeting as will also Drs. Bierring and Musser.

An innovation will be inaugurated at this Session on Tuesday and Wednesday following the General Meetings. This will consist of table demonstrations on a variety of topics and are intended to visualize the examination of patients and the measures adopted leading to diagnosis. These demonstrations will be held in small rooms on the Mezzanine of the hotel where the seating capacity and accommodation for visitors is limited. Members are therefore requested to indicate on cards that will be handed to them when they register what demonstrations they would like to attend.

Several scientific exhibits will be on view which we hope the members will not overlook.

The Buchanan County members do not plan that all the time of the Session shall be spent in study. On Wednesday evening the local members will be hosts to visiting members in the Crystal Room of the Robidoux. Just preceding this entertainment there will be a dinner under the auspices of the Local Committee on Arrangements with which the annual dinner to the Secretaries will be merged. Dr. Frank M. Grogan, superintendent of the State Hospital, has invited visiting

members to a luncheon at the hospital on Tuesday noon and a committee will furnish transportation.

The Golf Committee under the chairmanship of Dr. W. L. Kenney, Physicians and Surgeons Building, is planning a golf tournament on Monday afternoon and a dinner in the evening at the St. Joseph Country Club and asks that those wishing to enter the tournament communicate with Dr. Kenney before the Session. A trap shoot will be held Tuesday afternoon at the traps of the St. Joseph Gun Club. Members interested in entering this contest should write Dr. H. K. Wallace, Eighth and Jules streets.

The commercial exhibits will be located on the Mezzanine where members may easily take advantage of the opportunity to learn of new products and new services.

The following committees are in charge of the Session:

General committee on Arrangements: Dr. W. T. Elam, St. Joseph, chairman; Drs. A. J. Welch, Kansas City, and Spence Redman, Platte City.

Local committee on Arrangements: Dr. Floyd H. Spencer, St. Joseph, chairman; Drs. H. S. Conrad, W. L. Kenney, F. Gregg Thompson, W. T. Stacy and H. K. Wallace.

Committee on Entertainment: Dr. H. S. Conrad, St. Joseph, chairman; Drs. H. W. Carle and L. Robert Forgrave.

Committee on Golf: Dr. W. L. Kenney, St. Joseph, chairman; Drs. J. C. O'Donoghue and J. J. Bansbach.

Committee on Publicity: Dr. F. Gregg Thompson, St. Joseph, chairman; Drs. J. H. Ryan and W. C. Proud.

Committee on Finance: Dr. W. T. Stacy, St. Joseph, chairman; Drs. L. H. Fuson and W. Roger Moore.

Committee on Trap Shoot: Dr. H. K. Wallace, St. Joseph, chairman; Dr. Hodge Wallace.

The program appears on page 217.

DIRECTOR CROSSLEY AND STATE MEDICAL ASSOCIATION CREATE COORDINATING COMMITTEE

Suggestions as to changes in Rules and Regulations (form A-4) issued by the Missouri Relief and Reconstruction Commission, January 4, 1934, governing medical, dental and nursing service to persons receiving state or Federal relief were presented by representatives of the Missouri State Medical Association at a recent conference held in Jefferson City with former Lieutenant Governor Wallace Crossley, Director of the Commission, and Mr. A. R. Gephart, Field Director. The committee consisting of Dr. W. L. Allee, President, and Mr. E. H. Bartelsmeyer, Assistant Secretary, presented the views of the various societies with respect to making more clear the interpretation of the rules and their application.

A few county societies had objected to the prevailing fees allowed for medical service rendered the indigent sick in their homes but Mr. Gephart informed the conference that satisfactory agreements had been reached between those societies and the local relief directors based on 50 per cent of the usual local charge. Rules and Regulations No. 7 issued by the Federal Government provide that a uniform policy with regard to the medical care for indigent persons in their homes shall be made on the basis of an agreement between the relief administration and the organized medical profession state and/or local. In keeping with this policy our committee suggested to Director Crossley that a special coordinating Committee consisting of the State Relief Director, or his designated representative, and two representatives of the Missouri State Medical Association be formed to advise with and assist local relief directors and local county medical societies when difficulties are encountered in reaching agreements. Director Crossley approved this plan and Dr. Allee indicated that Mr. Bartelsmeyer and he would function on the committee until the St. Joseph Session.

While changes in the Rules and Regulations (form A-4) of the Missouri Relief Reconstruction Commission have not as yet been officially issued we feel sure the Commission will publish them at an early date. Subject perhaps to minor changes we publish the rules tentatively adopted by the Director of the Commission (with the portions submitted by the Association's representatives in italics).

MISSOURI RELIEF AND RECONSTRUCTION COMMISSION

Jefferson City, Missouri

MEDICAL, DENTAL, AND NURSING SERVICE

To persons Receiving State or Federal Relief

Based on, and subject to the limitations of "RULES AND REGULATIONS NO. 7," of the Federal Emergency Relief Administration, County Relief Administrators in Missouri are authorized to give medical, dental, and nursing aid on the following terms:

I. LIMITATIONS

1. Medical, Dental, and Nursing service at Federal expense is limited to counties to which a grant of State, or Federal Emergency Relief Administration funds has been made, and to persons in families receiving aid from State or FERA funds.
2. It should be borne in mind that such aid is designed merely to relieve doctors, den-

tists, nurses and druggists of the necessity of furnishing aid at their own expense. It is not intended to make such business profitable nor to relieve the local community of its obligation to the indigent sick.

II. MEDICAL

1. For home visits and office calls, 50 per cent of the usual charge may be paid. Home visits at State or Federal expense may not be substituted for service already available. Office calls shall not supplant the services of clinics provided by the community. *However, where an attending physician has made authorized home visits, office calls may be allowed when the patient becomes ambulatory for such further medical care as may be required.*
2. *For obstetrical service 50 per cent of the usual local charge may be paid. This service includes the necessary prenatal and postnatal care.*
3. For minor surgery, *including fractures, in cases not requiring hospitalization,* a flat fee of not more than $10 may be paid. *When in the judgment of the attending physician an X-ray is necessary to the treatment of a fracture, such X-ray may be authorized at a cost not to exceed 50 per cent of the usual local charge.*
4. Hospitalization and major surgery may not be paid from state or Federal funds.

III. DENTAL (In cooperation with the Missouri State Dental Society.)

IV. NURSING

When nursing service is necessary in the home in caring for a person on relief and ordered by the physician on the case, it may be paid for on a visit or day basis. The expense per visit may not exceed $1 and the expense per day may not exceed $4.

V. MEDICINE

1. Medicine prescribed by the physician on a case may be paid for at 50 per cent of the local prescription rate.
2. Patent medicines may not be bought with State or Federal funds.

VI. WRITTEN ORDERS

All authorizations for medical, nursing, and dental care shall be issued in writing by the local relief officer, on the regular relief order blank which will be supplied by the state office, prior to giving such care; except that telephone authorization shall immediately be followed by such a written order.

Full information concerning the Federal Emergency Relief Administration to extend medical care to the indigent sick in their homes has been made available to county societies through correspondence, the personal attendance of our Assistant Secretary at county society meetings and in the columns of The Journal from time to time all under the direction of Dr. Joseph W. Love, Chairman of the Committee on Medical Economics. While it has been the policy of Director Crossley in so far as possible to encourage local relief directors and county medical society officers to hold conferences regarding medical relief to the indigent poor, the formation of the Coordinating Committee with the State Association will tend to solve problems of medical relief that may arise in local communities.

THE GIFT OF A WATCH

Gifts may be of many kinds and can be divided into two comprehensive groups; one to be valued purely because of its pecuniary worth, the other to be cherished for its intrinsic import. A happy combination of the two seldom exists.

Only too often, and truly, is it said that much of the substance of life cannot be bought with money, and perhaps the most difficult portion to obtain and to hold is the esteem of one's fellow men. When a representative group of intimates gathers at the festive board to publicly proclaim the worth of a fellow toiler and to attest his virtues and attainments by the gift of a watch, such action should not go unrecognized.

Recently Dr. Herluf G. Lund, St. Louis, was so honored after twenty consecutive years as chairman of the staff of the Lutheran Hospital in that city.

A score of years is a relatively short time and is eclipsed by comparison with longer periods of fifty or more or a lifetime of devoted service in various causes.

Retirement after a term of service, even the relinquishing of a staff chairmanship, would mark for many a sudden precipitation into the oblivion of desuetude and contentment; but not so for Dr. Lund, still in middle life, whose greatest desire is to carry on. His characteristics guarantee his ability to do so.

Entirely self-made, he represents the best in modern medicine. Always resourceful, tactful and humble, he never has shown a weakening of the moral spine by indulgence or favoritism.

An expression of feeling in words is frequently inadequate. However, it is the open recognition of qualities by one's fellow men which tempers the vicissitudes of life and whets the urge for greater effort and accomplishment.

Herluf Lund, we congratulate you!

A DANGEROUS FAKER JAILED

The maximum penalty for practicing medicine without a license was imposed by Judge Butler in the Court of Criminal Correction in St. Louis April 3 on William J.

Voss who treated numerous people for "eye trouble." He sold "eye medicine" which a chemist testified contained a chemical used in the manufacture of paint remover. Voss was sentenced to spend one year in the workhouse and to pay a fine of $100.

Witnesses testified that Voss told them he could cure their "eye-troubles" and collected fees for his ministrations. Voss was formerly listed in the telephone directory under the title of "Dr." but admitted on the stand he had never been a physician. He was known as "Dr. Voss" at the address where he was arrested.

Voss served a year of a sentence in the Colorado State Penitentiary for issuing a bogus check, being paroled in 1918. A warrant was issued against him on the day of his trial in St. Louis charging him with the issuance of another bogus check.

For the next year there will be at large one less menace to the public health. Such a person is indeed a two-fold menace; he causes further injury in the majority of cases that he "treats" and keeps persons who need medical care from going to a physician in time to be cured.

Judge Butler evidenced his comprehension of the injustice perpetrated on the community by the quack practitioner by inflicting the maximum penalty provided by the law.

HOTELS AND RATES AT ST. JOSEPH

Reservations for hotel accommodations for the Annual Meeting at St. Joseph should be made in advance of the meeting. Members should communicate with the hotel direct giving information on the accommodations they desire, including price and time of arrival. Should there be difficulty in making satisfactory arrangements the member should write Dr. Floyd H. Spencer, First State Bank Building. St. Joseph, chairman of the local Committee on Arrangements.

The names and rates of hotels follow:

HOTEL ROBIDOUX

	Single	Double
Room with tub bath	$2.50 up	$3.50 up
Room with shower	3.00	4.00
Room with twin beds, tub		4.00 up
Room with twin beds, shower		5.00 up

HOTEL JEROME

Room with tub and shower	1.75	3.00
Room with tub	1.75 up	2.75 up
Room with shower	1.50	2.50
Connecting room with bath	1.50 up	2.25 up
Room without bath	1.25	2.00 up

ST. FRANCIS HOTEL

Room with bath	1.50 up	2.50 up
Room without bath	1.25 up	2.00 up

ST. CHARLES HOTEL

Room with bath	1.25	2.00
Room without bath	1.00	1.35

HOTEL METROPOLE

Room with bath	1.50	2.00
Room without bath	1.00	1.50

HOTEL WOODLAND

Room with bath	1.50	2.00
Room without bath	1.00	1.50

NEWS NOTES

Dr. J. Albert Key, St. Louis, was the guest of the St. Clair County (Illinois) Medical Society in East St. Louis April 5. He discussed "Certain Fractures Which Involve Joints."

The tenth scientific session of the American Heart Association will be held June 12 in the Cleveland Hotel in Cleveland. The program will be devoted to arteriosclerotic heart disease.

Dr. David P. Barr, St. Louis, addressed the eighteenth annual clinical session of the American College of Physicians which convened in Chicago, April 16 to 20. Dr. Barr spoke on "The Encephalitis Epidemic in St. Louis."

Dr. Harry N. Glick, St. Louis, was a guest of the Montgomery County (Illinois) Medical Society at Litchfield, Illinois, March 22 and gave an address on "Some Practical Considerations of Middle Ear Disease in Infants and Young Children."

The annual lecture of the St. Louis chapter of the Alpha Omega Alpha Honorary Medical Society was delivered April 4 by Dr. John F. Fulton, New Haven, professor of physiology at Yale University and president of the Harvey Cushing Society. Dr. Fulton spoke on "The Frontal Lobe; Its Past, Present and Future."

Four universities will offer courses for the training of teachers and supervisors of sight-saving classes this summer. The schools are the State Teachers College, Buffalo, New York; the University of Chicago, Chicago; the University of Cincinnati, Cincinnati, and Teachers College, Columbia University, New York.

The President on April 6 proclaimed the first day of May as Child Health Day in the interest of promoting the best physical and mental development of children as an essential part of the social health program of the nation. Governor Park also issued a proclamation setting aside this day and urged all communities to use this day to advance interest in child welfare.

A complimentary copy of the *Bulletin* of the American Society for the Control of Cancer has been offered any physician requesting it from the society at 1250 Sixth Avenue, New York City. Each issue of the *Bulletin* contains a number of short practical articles written by distinguished authorities in the field of cancer therapy and cancer research. The subscription price is $1.00 a year.

Dr. J. Edgar Stewart and R. S. Kieffer, St. Louis, were guest speakers on April 3 at the bimonthly scientific meeting of the staff of the Brokaw Memorial Hospital, Bloomington, Illinois. Dr. Stewart discussed "Fractures Involving Joints" and Dr. Kieffer's subject was "The Acute Abdomen." A dinner preceded the meeting which was held at Tilden Hall Hotel and was attended by about sixty-five physicians.

Dr. O. Jason Dixon, Kansas City, was the guest speaker before the Golden Belt Medical Society at Junction City, Kansas, April 5 and spoke on "The Advantage of Conservative Treatment in Acute Mastoid Disease." He spoke before the Pan Handle District Medical Society at Amarillo, Texas, April 10 on "A New Method for Surgical Treatment of Sigmoid Sinus Thrombosis With the Use of Viable Muscle Implant."

The third annual meeting of the Harvey Cushing Society convened in St. Louis April 5 and 6. The society is composed of North American physicians and surgeons specializing in diseases and lesions of the brain, the spinal cord and allied anatomy. The meeting opened with an operative clinic at Barnes Hospital followed by a roentgenological demonstration. The afternoon of the first day and the entire second day were devoted to addresses. Dr. John Fulton, New Haven, Connecticut, professor of physiology at Yale University and president of the society, spoke at the annual dinner given on the first evening of the meeting. His subject was "The Relation of the Physiology of the Nervous System to Neurology."

Dr. Claude J. Hunt, Kansas City, will deliver an address on "Intrathoracic Goiter" at the meeting of the American Association for the Study of Goiter in Cleveland June 7, 8 and 9, just preceding the meeting of the American Medical Association. Dr. Hunt was the guest of the Panhandle Medical Society at Amarillo, Texas, April 11, and spoke on "Surgery of Cancer of the Stomach" and "Surgical Treatment of Cystocele, Rectocele and Uterine Prolapse."

Drs. Evarts A. Graham and Harvey J. Howard, St. Louis, were guests of the Dallas Southern Clinical Society at its sixth annual spring clinical conference, March 26 to 30 at Dallas, Texas. Dr. Graham presented addresses on "Disorders of Liver, Gallbladder and Pancreas," "Emphysema and Related Surgical Chest Conditions" and "Pulmonary Suppuration and Related Disorders." Dr. Howard presented addresses on "The Bacteriology of the Conjunctiva and Cornea," "An American Ophthalmologist in the Orient," "Syphilis of the Eye" and "Safeguards in Intra-ocular Operations."

The St. Louis Trudeau Club met jointly with the St. Louis Medical Society April 3 at the St. Louis Medical Society Building, St. Louis. The program consisting of a symposium on "Prognosis in Pulmonary Tuberculosis" was as follows: "The Influence of Pneumothorax on Prognosis," Drs. Andrew Henske and C. W. Ehlers; "Phrenic Nerve Operations and Their Influence on Prognosis," Dr. James L. Mudd; "Thorocoplastic Operations and Their Influence on Prognosis," Dr. Evarts A. Graham, and "End Results on 398 Arrested Cases of Tuberculosis, a Follow-Up Study for a Period of One to Eleven Years," Dr. H. I. Spector. Discussion was opened by Drs. J. F. Bredeck, Duff Allen and G. D. Kettelkamp.

Col. George A. Skinner, Omaha, Surgeon of the Seventh Corps Area, United States Army, who has been conducting an inactive duty training period for officers of the medical department of the Reserve Corps at St. Louis University, was honored with a dinner at Hotel Melbourne, St. Louis, April 19, at which he was presented a certificate of esteem. Colonel Skinner will retire soon from active service in the Army. The speakers at the dinner were Lt. Col. T. P. Brookes, Col. W. E. Leighton, Maj. Amand Ravold, Lt. Col. N. W. Sharpe, Maj. J. E. Phillips,

Maj. J. R. Hall and Maj. Lee D. Cady. Several in attendance gave expression of their personal appreciation of Colonel Skinner. Following the dinner the regular program for the inactive duty training period was resumed for the evening.

Mr. E. Mead Johnson, president of the Mead Johnson Company, Evansville, Indiana, died of a heart attack on March 20. Mr. Johnson had been for many years allied in the ethical production of medical products. He was educated as a lawyer but abandoned that profession after trying his first case. He helped found the Seabury Johnson surgical supply concern in Poughkeepsie, New York, and a little later with a cousin organized the firm of Johnson and Johnson, now nationally prominent in the manufacture of drugs and surgical dressings. In 1900 Mr. Johnson withdrew and organized the firm which now bears his name, locating in Jersey City, New Jersey. In 1915 the Mead Johnson Company was moved to Evansville after a fire had destroyed the Jersey City buildings. Beginning with the marketing of dextrimaltose, then the manufacture of infant diet materials from dextri-maltose, Mr. Johnson added other products and built up the Mead Johnson Company to its present volume of production of infant diet materials and allied products. Branches of the company are located in Zeeland, Michigan; Belleville, Ontario, and St. Johns, Newfoundland. The company will be carried on under the same policies by a son, Mr. Lambert D. Johnson.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

The Nodaway County Medical Society had as its guests at Maryville April 4 Drs. Carl Bryant Schutz and G. Wilse Robinson, Jr., Kansas City. Dr. Schutz spoke on "The Surgical Treatment of Skull Fractures" and Dr. Robinson discussed "The Diagnosis of Paraplegia."

On April 13 Drs. Louis H. Jorstad, W. E. Sauer and Richard S. Weiss, St. Louis, were guests of the Marion-Ralls County Medical Society at Hannibal. Dr. Jorstad spoke on "Cancer of the Breast"; Dr. Sauer discussed "Cancer of the Larynx," and Dr. Weiss' subject was "Precancer and Cancer of the Skin."

The South Central Counties Medical Society had Drs. Quitman U. Newell and T. K. Brown, St. Louis, as its guests at Houston April 25. Dr. Newell spoke before an open meeting on "Prenatal Care" and to members of the Society on "Report on Maternal Welfare With Statistics." Dr. Brown's subject before the open meeting was "Infections of Childbirth" and at the scientific session "Puerperal Infection."

Drs. Stanley S. Burns and David B. Stutsman, St. Louis, were the guests of the Gasconade-Maries-Osage County Medical Society at Linn on April 26. Dr. Burns discussed "The Diagnosis of Mastoiditis" and Dr. Stutsman "Prostatic Diseases" and "Upper Urinary Tract Pathology."

The following products have been accepted by the Council on Pharmacy of the American Medical Association for inclusion in New and Nonofficial Remedies:

Don Baxter Intravenous Products Corporation
- Sterile 2½% Dextrose in Physiological Sodium Chloride Solution in Vacoliter Container
- Sterile 5% Dextrose in Physiological Sodium Chloride Solution in Vacoliter Container
- Sterile 7½% Dextrose in Physiological Sodium Chloride Solution in Vacoliter Container
- Sterile 10% Dextrose in Physiological Sodium Chloride Solution in Vacoliter Container

Eli Lilly & Co.
- Solution Liver Extract Concentrated—Lilly Ampoules Solution Liver Extract Concentrated—Lilly, 10 c.c.

G. D. Searle & Co.
- Tablets Procaine Borate Without Epinephrine

Hoffmann-La Roche, Inc.
- Tablets Digalen-Roche, 1 Cat Unit

National Drug Co.
- Scarlet Fever Streptococcus Toxin for the Dick Test (National) fifty test package
- Typhoid-Paratyphoid A Vaccine, thirty 1 c.c. ampule-vials package

Parke, Davis & Co.
- Ortal Sodium
  - Capsules Ortal Sodium, 3 grains (0.2 Gm.)

Sharp & Dohme, Inc.
- Antipneumococcic Serum, Types I and II Combined—Mulford
- Antipneumococcic Serum, Concentrated (Pneumococcus Antibody Globulin, Types I and II)—Mulford
- Diphtheria Toxoid, Alum Precipitated (Refined)
- Live Oak Pollen Extract—Mulford; Red Clover Pollen Extract—Mulford; Sweet Clover Pollen Extract—Mulford; Southern Ragweed Pollen Extract—Mulford

Sheffield Farms Co., Inc.
Sheffield B. Acidophilus Milk
John Wyeth & Brother, Inc.
Ampoule Solution Dextrose 25 Gm. in 50 c.c.
Ampoule Solution Dextrose 50 Gm. in 100 c.c.

The American Medical Golfing Association will hold its twentieth annual tournament at the Mayfield Country Club in Cleveland on Monday, June 11. Thirty-six holes will be played in competition for fifty trophies and prizes in eight events. The trophies include the association championship for thirty-six holes gross, the association handicap championship for thirty-six holes net, the choice score handicap championship for thirty-six holes gross, the low gross eighteen hole championship, the low net eighteen hole handicap championship, the maturity event limited to fellows over 60 years of age, the old guard championship limited to competition of past presidents and the kickers' handicap. Other events and prizes will be announced at the first tee.

The Mayfield County Club is described by the chairman, Dr. John B. Morgan, Cleveland, as "probably the finest course in the district and certainly one of the most interesting." Many championships have been held on the course.

All male fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Application blanks may be obtained by addressing Bill Burns, Executive Secretary, 4421 Woodward Avenue, Detroit. Participants in the A. M. G. A. turnament are required to furnish their home club handicap signed by the secretary. No handicap over 25 is allowed except in the kickers' handicap. No trophy will be awarded a fellow who is absent from the annual dinner following the tournament.

OBITUARY

HENRY A. BRIERLY, M.D.

Dr. Henry A. Brierly, Peculiar, was born November 11, 1868, on his father's farm three miles southeast of Strasburg, Cass County, Missouri, and died March 1, 1934, at Wesley Hospital, Kansas City. His youth was spent in assisting with the farm work and attending the public schools where his early education was obtained. After graduating from the Harrisonville High School in 1889 he taught in the rural schools of Cass County for two years.

He received his degree of M.D. from the University Medical College, Kansas City, in 1895 and located at Peculiar, Missouri, for the practice of his chosen profession.

On September 30, 1896, he was married to Miss Hattie Warner who died September 26, 1921. A daughter, Miss Ailene Brierly, survives this union.

On June 26, 1924, Dr. Brierly was united in marriage with Miss Clara Porter who survives him.

From the very beginning of Dr. Brierly's medical career he championed the principles of regular scientific medicine and was continuously in affiliation with his county and state medical bodies. He joined the Cass County Medical Society during the first year of its organization (1903) and remained a faithful and worthy member to the end of his life. He rendered valuable service in shaping the policies of the Society, and in recognition of his sound judgment and executive abilities the Society with considerable regularity elected him to its various offices. He served four terms as its president, his last term ending December, 1933. His name appears with conspicuous frequency throughout the transactions of the Society.

He possessed rare ability as a presiding officer and was never embarrassed by lack of words or ideas whenever called upon for an impromptu discussion or address.

He was ever a student and thus kept abreast of medical progress. It is doubtful if his ability as a diagnostician was surpassed by any other Cass County physician.

The high esteem in which he was held, both by his medical associates and by the people in his community, was attested by the large concourse of people who attended his funeral at Peculiar, March 3, 1934.

The Cass County Medical Society adopted the following resolution at a meeting on March 8:

Whereas, By death the Cass County Medical Society has lost a worthy and beloved member, Dr. Henry A. Brierly, whose years of service in the medical profession and whose faithful discharge of his duties in the interest of organized scientific medicine, the testimony of a large circle of patients as to his skill, loyalty and devotion to their welfare, and whose civic activities have ever been directed toward bringing his community a better and fuller life, therefore, be it

Resolved, That the Cass County Medical Society has lost one of its most efficient members, the family a devoted husband and father, and the community a real friend who gave intelligent support to every interest that needed cooperation and encouragement, and be it further

Resolved, That a copy of these resolutions be sent to his family and the resolution be spread upon the records of this Society.

J. S. Triplett, M.D.

ROBERT M. SMITH, M.D.

Dr. Smith was born in Elizabeth, Pennsylvania, July 23, 1862, and was the son of Wilson and Elvira Smith. He received his early education and spent his happy boyhood there, those halcyon days of youth when joy and happiness reigned supreme in his heart. He attended the University of Pittsburgh where he received his degree in pharmacy. He came to Kansas City in 1889 and opened a drug store which he operated while he was attending lectures at the Kansas City Medical College where he received the degree of M.D. in 1902.

He began to practice medicine at once and continued to do so until his death, March 18, 1934, at Research Hospital in Kansas City, where he had been a patient for three weeks. He was ill for six months, death being caused from carcinoma of the mouth and larynx. The great Smith family has given to the United States many of its most distinguished physicians; and more members of this great family today are standing in the front

ranks of the medical profession. Dr. Smith remembered the wisdom of economy with time and money, the worth of character, and that kindness was a power never to be overlooked. He was in general practice in Kansas City for thirty-two years. His office was in the Grand Avenue Temple for twenty-seven years.

He was a member of the Jackson County, Missouri State and the A. M. A. medical societies, also the South Gate Masonic Lodge, the Scottish Rite, Shrine and the large Men's Bible Class of the First Baptist Church, which he attended every Sunday. He was a staff member of St. Joseph, Research and Wesley hospitals.

Mrs. Ira Smith, his widow; four daughters, Mrs. Jack Sheridan, Fairbury, Nebraska; Mrs. H. C. Fisher, Harvey, Illinois; Mrs. E. H. Whitaker, Chicago; Miss Ruth Smith, New York City, one brother, Dr. Harry Smith, McKeesport, Pennsylvania, and two granddaughters survive.

Dr. Smith thanked God that he was alive and able to do his part of the work and be of use in Kansas City. His heart was stout, and he was always cheerful, and he went about doing good, shedding sunshine as he passed along, and remembered as long as there was life there was hope. He also remembered that enthusiasm was contagious, and it was the genius of truth and sincerity and all who hoped to win victories in life's struggles must march under its banner. He was devoted to his wife and home. His home was equipped with radio and everything to make it interesting for him. He spent his evenings at home as much as he could. Pastor Bowen, an old friend of Dr. Smith, conducted the religious funeral services. He paid a high tribute to Dr. Smith as a man and physician. South Gate Masonic Lodge conducted their ancient, impressive and beautiful services. The audience filled the Freeman Chapel.

He had generosity, discretion, tact and the most important of all, cheerfulness and courage to the end. Interment was in Mt. Moriah Cemetery, March 21, in Kansas City, Missouri.

Hal Foster—in the Jackson County Medical *Journal.*

SPLENECTOMY IN CHRONIC ARTHRITIS ASSOCIATED WITH SPLENOMEGALY AND LEUKOPENIA (FELTY'S SYNDROME)

Erle B. Craven, Jr., Durham, N. C. (*Journal A. M. A.*, March 17, 1934), relates a case that came under his observation, corresponding in essential details with the cases reported by Felty in 1924 and the case reported by Hanrahan and Miller in 1933, that was characterized by chronic arthritis, splenomegaly and leukopenia. There was an apparently temporary effect of splenctomy, first performed in this syndrome by Hanrahan and Miller. The gross and microscopic appearance of the spleen removed from the patient was similar to the picture described by Hanrahan and Miller. A persistent, although variable, eosinophilia occurred and small groups of eosinophils were observed in the splenic pulp. In Felty's original description, two of his three cases in which differential counts were reported exhibited an eosinophilia. In the cases reported in the literature there is not uncommonly an association of neutropenia and eosinophilia with chronic arthritis and of eosinophilia with splenomegaly. There was a diminished sugar tolerance or delayed sugar removal.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

BATES COUNTY MEDICAL SOCIETY

The Bates County Medical Society met at the American Legion Hall in Rich Hill, March 15, with Dr. R. H. Smith, Rich Hill, secretary, presiding in the absence of the president, Dr. G. A. Delameter.

Drs. Eugene Hamilton and Buford Hamilton, Kansas City, were guests of the Society and delivered addresses. Dr. Eugene Hamilton spoke on "Intestinal Obstruction" illustrated with lantern slides, and Dr. Buford Hamilton spoke on "The Toxemias of Pregnancy." Each handled his subject in a masterly manner and a general discussion followed each presentation.

Members present were Drs. E. E. Robinson, Adrian; C. A. Lusk and T. J. Halsey, Butler; H. A. Rhoades, Foster; W. H. Allen, Sr., C. J. Allen, and R. H. Smith, Rich Hill. Guests were in addition to the Kansas City physicians Drs. C. L. Keithley, Milo; A. G. Altham, Sheldon; J. T. Hornback and W. S. Love, Nevada.

A copy of Dr. E. T. McGaugh's "Easier Medico Plan" as it appeared in a Kansas City newspaper recently was read to the Society. A motion voicing the disapproval of the plan as it appeared in the newspaper was made, seconded and carried. The secretary was instructed to write to Dr. McGaugh, Secretary of the State Board of Health, and inform him of the action of the Society.

A vote of thanks was extended to the guest speakers and the meeting adjourned.

R. H. Smith, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met March 21 with forty-one members present.

Dr. W. T. Elam introduced a motion which as amended by Dr. Charles G. Geiger read as follows: "That a committee of five be appointed by the

president to inquire into and investigate the relations and activities of the Welfare Board, Visiting Nurses Association, Red Cross and all other charity organizations in connection with their various forms of organized service especially as it relates to the regular organized medical profession, giving special attention to the present Federal set up." Motion carried.

The president appointed the following committee: Dr. W. T. Elam, chairman; Drs. Floyd H. Spencer, J. H. Ryan, O. E. Whitsell and W. T. Stacy.

The committee on economics had not finished their report on the revision of the fee bill.

Dr. Riley M. Waller, Dodge City, Kansas, presented a young man who had suffered from ankylosis of the left hip for a number of years. This was an interesting case and showed that the treatment given had been successful. The presentation of the case provoked a lengthy discussion by the following physicians: Drs. Floyd H. Spencer, Charles Greenberg, W. T. Elam, T. L. Howden, C. S. Grant, A. B. McGlothlan, Cabray Wortley and Charles Geiger, and closed by Dr. Waller.

Dr. L. G. Balding spoke on "Some Interesting Eye Cases." The address was well delivered and discussed by Drs. Ferguson and O. E. Whitsell.

The Society had as its guest Dr. Charles D. Humberd, Barnard, president of the Nodaway County Medical Society, who was given the privilege of the floor and invited to come again soon.

Meeting of April 4

The regular meeting of the Society was called to order by the president in the Missouri Methodist Hospital at 8 p. m., April 4.

The proposed amendment to the by-laws of the Buchanan County Medical Society as published in the *Bulletin* of March 21 was read by the secretary and a vote resulted in seven favoring and twenty-seven opposing.

Dr. L. H. Fuson moved that the committee appointed at the last meeting, whose duty it was to investigate the activities of charity organizations, be discharged as a standing committee already exists whose duty it is to care for this work. After some discussion the motion carried.

Dr. L. R. Forgrave, chairman of the committee appointed to revise the fee bill, reported that his committee is making rapid progress and will be able to make a final report in a few days.

Dr. C. S. Grant read a paper on "Neurosyphilis" and presented a case. The subject was well handled by the author and brought out an interesting discussion by the following: Drs. T. L. Howden, A. H. Muench, J. J. Bansback, W. T. Stacy, W. D. Webb and Daniel Morton.

Emmett F. Cook, M.D., Secretary.

GRUNDY COUNTY MEDICAL SOCIETY

The Grundy County Medical Society met March 6 at Trenton with a good attendance. Dr. Floyd H. Spencer, St. Joseph, was a visitor.

Dr. E. A. Duffy, Trenton, read a paper on "Treatment of Fractures." An interesting discussion followed.

It was moved, seconded and carried that Dr. H. E. Bowers, Galt, be accepted as a member on payment of dues for 1934. Dr. Bowers is transferring his membership from the Sullivan County Medical Society.

March 14 was set as the date for the Cancer Committee Program under the auspices of the Missouri State Medical Association. Dr. Floyd H. Spencer is in charge of the team which will be in Trenton.

E. A. Duffy, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met in conjunction with the Sebastian County (Arkansas) Medical Society at Fort Smith, Arkansas, March 13. Thirteen members of the Jasper County Medical Society were present.

The scientific program was preceded by a delightful dinner.

The program, presented by members of the Jasper County Medical Society, follows:

"The Interpretation of Chest Roentgenograms" by Dr. W. M. Kinney.

"Renal Tuberculosis" by Dr. Paul W. Walker and Dr. L. W. Baxter.

"A Method of Fixation and Treatment of Tuberculosis of the Spine" by Dr. S. A. Grantham.

The papers were well discussed by members of both societies.

Meeting of March 20

The Society convened March 20 with nine members present.

The following communications were read: A card of thanks from Mrs. Huffman; a letter from the Maternity Center on observation of Mothers' Day; a letter from Dr. E. J. Goodwin concerning the proposed amendments to the Constitution and By-Laws of the State Medical Association, and a letter concerning the establishment of a transient bureau.

Dr. J. W. Barson, Joplin, presented a case of malignancy of the cervical glands following electrolysis of a lesion in the temporal region. Treatment was by radium.

Dr. Ed. James, Joplin, reported a case of gonorrhea in a girl 27 months old.

Paul W. Walker, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met at the Bothwell Hospital, Sedalia, March 19 with the following members present: Drs. W. T. Bishop, F. R. Morely, J. E. Mitchell, A. E. Monroe, M. P. Shy, C. G. Stauffacher, D. P. Dyer, A. J. Campbell, Guy Titsworth, F. B. Long, C. A. McNeil, Cord Bohling and John B. Carlisle, Sedalia. Dr. Harry Bay, Cole Camp, and Dr. E. E. Holtzen, Smithton, were guests.

Dr. C. A. McNeil read a paper on "Heredity" which was highly instructive.

Amendments to the Constitution and By-Laws as submitted by the St. Louis Medical Society were read and tabled.

Meeting of April 2

The Society met in regular session at the Bothwell Hospital. Dr. Cord Bohling called the meeting to order with the following present: Drs. C. G. Stauffacher, A. L. Walter, C. D. Osborne, W. A. Beckemeyer, A. E. Monroe, A. J. Campbell, M. P. Shy, W. T. Bishop, Cord Bohling, C. A. McNeil and John B. Carlisle. Drs. R. S. Reser and J. A. Logan were guests from the Benton County Medical Society.

Dr. A. E. Monroe, Sedalia, read a paper on "The History and Development of Medicine." This was a well written and a highly interesting paper and was well discussed.

John B. Carlisle, M.D., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION

77th Annual Meeting, Robidoux Hotel, St. Joseph

The 77th Annual Meeting of the Association convenes at St. Joseph, Monday, Tuesday, Wednesday and Thursday, May 7, 8, 9 and 10. The House of Delegates will convene Monday, May 7, and hold its first session when a large part of the business of the Association will be transacted.

HOUSE OF DELEGATES

Crystal Room, Robidoux Hotel

First Meeting—Monday, May 7, 1934—9:30 A. M.

Order of Business

Roll Call.
Reading of Minutes of Previous Meeting.
Reading of President's Message and Recommendations.
Appointment of Reference Committees—
  Committee on Amendments to the Constitution and By-Laws.
  Committee on Resolutions.
  Committee on Miscellaneous Affairs.
Report of the General Committee on Arangements: W. T. Elam, St. Joseph, Chairman.
Report of the Local Committee on Arrangements: Floyd H. Spencer, St. Joseph, Chairman.
Report of Secretary.
Report of Treasurer.
Report of Committee on Scientific Work: E. J. Goodwin, St. Louis, Chairman.
Report of Committee on Public Policy: J. F. Harrison, Mexico, Chairman.
Report of Committee on Publication: J. C. B. Davis, Willow Springs, Chairman.
Report of Committee on Defense: C. E. Hyndman, St. Louis, Chairman.
Report of Committee on Medical Education and Hospitals: R. A. Woolsey, St. Louis, Chairman.
Report of Committee on Cancer: Ellis Fischel, St. Louis, Chairman.
Report of Committee on Postgraduate Course: C. H. Neilson, St. Louis, Chairman.
Report of Committee on Medical Economics: Joseph W. Love, Springfield, Chairman.
Report of Special Committees—
  Committee on Constitution and By-Laws: M. P. Overholser, Harrisonville, Chairman.
  McAlester Memorial Foundation, A. R. McComas, Sturgeon, Chairman.
  Military Committee, Lee D. Cady, St. Louis, Chairman.
Appointment of Committee on Nominations.

Recess till 3:00 P. M.

Report of the Council: A. R. McComas, Sturgeon, Chairman.
Report of Reference Committees—
  Committee on Amendments to the Constitution and By-Laws.
  Committee on Resolutions.
  Committee on Miscellaneous Affairs.
New Business (Resolutions, Memorials, etc.)
Selection of Place of Next Meeting.

Second Meeting, Wednesday, May 9, 1934—3:45 P. M.

Roll Call.
Reading of Minutes.
Election of Officers—
  Election of President-Elect.
  Report of Committee on Nominations.
Installation of President.
Nominations for Standing Committees by President and Confirmation by House of Delegates.
Unfinished Business.

GENERAL MEETING

Tuesday, May 8, 1934—8:15 A. M. Crystal Room, Robidoux Hotel

Address of the President.....W. L. Allee, M.D., Eldon

Address of the President-Elect.....C. T. Ryland, M.D., Lexington

The Treatment of Diseases of the Blood: With Diagnostic Clinic.... John H. Musser, M.D., New Orleans, Vice President, American Medical Association

Ectopic Pregnancy: Diagnosis as to Location of Pregnancy in the Tube .....E. Lee Dorsett, M.D., St. Louis

Iodine Reaction in the Early Diagnosis of Cancer of the Cervix..... .....Fred Emmert, M.D., St. Louis

Fibroma of the Small Intestine With Intussusception..... .....Wallis Smith, M.D., and Guy D. Callaway, M.D., Springfield

Operative Treatment of Esophageal Diverticula..... .....F. G. Thompson, Jr., M.D., St. Joseph

Diaphragmatic Hernia With Special Reference to Esophageal Hiatus Hernia.....W. A. Myers, M.D., Kansas City

At 11:30 a. m. the General Meeting will adjourn and the Table Demonstrations will open on the Mezzanine Floor.

TABLE DEMONSTRATIONS

Tuesday, May 8, 1934—11:30 A. M. Mezzanine Floor, Robidoux Hotel

Admittance by ticket since accommodations are limited. Tickets are free and can be obtained at the Registration Desk.

Biopsy: Anesthesia; Instruments and Their Methods; Frozen Section Specimens; Cautery Scissor and Punch Excision. Special attention given to specimens from mouth and lip, breast, uterus, rectum and glands.....E. H. Skinner, M.D., Kansas City

Blood Typing; Blood Matching; Demonstration of Various Methods of Blood Transfusion.....Carl R. Ferris, M.D., Kansas City

Diphtheria Immunization and Schick Test. Motion Picture..... .....W. Roger Moore, M.D., St. Joseph

Gonorrhea.....Charles Greenberg, M.D., St. Joseph

Important Features of an Examination of the Ear, Nose and Throat.. .....John L. Myers, M.D., Kansas City

Laboratory Methods of Diagnosis in Gastro-Intestinal Diseases.... .....D. A. Williams, M.D., Kansas City

Practical Points in the Treatment of Rectal Disorders..... .....F. B. Campbell, M.D., Kansas City

Syphilis.....C. C. Dennie, M.D., Kansas City

GENERAL MEETING

Tuesday, May 8, 1934—1:30 P. M. Crystal Room, Robidoux Hotel

Tertian Malaria With Unusual Type of Skin Manifestations..... .....A. Glenn Davis, M.D., Senath

Medical Aspects of Thyroidectomy for Organic Heart Disease..... .....Julius Jensen, M.D., St. Louis

A Working Basis for the Therapeutics of Angina Pectoris..... .....J. Curtis Lyter, M.D., St. Louis

The Roentgenological Aspect of Silicosis..... .....Edwin C. Ernst, M.D., St. Louis

Surgery of the Autonomic Nervous System. I. The Effect of Perisympathetic Denervation on the Rectum and Colon (Experimental Megacolon). II. The Effect of Sympathetic and Perisympathetic Denervation on the Urinary Bladder..... .....J. M. McCaughan, M.D., and J. H. Hershey, M.D., St. Louis

Allergy.....Herbert J. Rinkel, M.D., Kansas City

Allergy in Internal Medicine.....Lee Petit Gay, M.D., St. Louis

The Treatment of the Underprivileged Diabetic..... .....T. L. Howden, M.D., St. Joseph

Demonstration and Interpretation of Urographic Shadows..... .....Otto Wilhelmi, M.D., St. Louis

The Blood Platelet Count and Postoperative Venous Thrombosis.... .....R. B. H. Gradwohl, M.D., and S. J. Hiller, M.D., St. Louis

Blood Pressure and When It Can Be Called Malignant..... .....E. J. Schisler, M.D., St. Louis

GENERAL MEETING

Session Open to the Public

Tuesday, May 8, 1934—8:00 P. M. Crystal Room, Robidoux Hotel

The Educational Function of the American Medical Association..... Walter L. Bierring, M.D., Des Moines, Iowa, President-Elect, American Medical Association

Diet in Disease.....John H. Musser, M.D., New Orleans, Vice President, American Medical Association

The Physician in the Life of the Nation..... Rev. Father Alphonse M. Schwitalla, S. J., St. Louis, Dean, St. Louis University School of Medicine

GENERAL MEETING

Wednesday, May 9, 1934—8:15 A. M. Crystal Room, Robidoux Hotel

What the General Practitioner Should Know About Prevention of Eye Diseases. Motion Pictures..... .....Emmett P. North, M.D., and Vincent L. Jones, M.D., St. Louis

Coronary Artery Disease: With Diagnostic Clinic....Walter L. Bierring, Des Moines, President-Elect, American Medical Association

Carcinoma of the Prostate.....G. H. Ewell, M.D., Madison, Wisconsin

Chronic Prostatitis: Effects of Treatment on the Prostatic Urethra With Present Day Fulguration and Resection..... .....David B. Stutsman, M.D., St. Louis

Bladder Catheterization: Its Benefits and Dangers in Prostatic and Urogenic Obstruction.....D. K. Rose, M.D., St. Louis

Fistula in Ano.....W. K. McIntyre, M.D., St. Louis

Management of Hyperthyroidism.....E. V. Mastin, M.D., St. Louis

The Neurotic—A Challenge...G. Wilse Robinson, Jr., M.D., Kansas City

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Practical Points in the Treatment of Rectal Disorders..... .....F. B. Campbell, M.D., Kansas City

Syphilis.....C. C. Dennie, M.D., Kansas City

GENERAL MEETING

Wednesday, May 9, 1934—1:30 P. M. Crystal Room, Robidoux Hotel

Abduction Traction Treatment of Congenital Dislocated Hips..... .....Wm. J. Stewart, M.D., Columbia

The Experimental Production of Fat (Pancreatic) Necrosis.....
.....M. Pinson Neal, M.D., and Max M. Ellis, Ph.D., Columbia

Analytical Observations Upon Missouri Methods of Treatment and Control of Tuberculosis, Insanity and Cancer.....
.....E. H. Skinner, M.D., Kansas City

Diagnosis and Treatment of Perirenal Abscess. Lantern Slides.....
.....James R. McVay, M.D., Kansas City

Practical Points in Endocrine Diagnosis and Treatment for the General Practitioner.....W. M. Ketcham, M.D., Kansas City

Amebiasis.....Albert S. Welch, M.D., Kansas City

Transurethral Prostatotomy. Motion Picture Demonstration.....
.....Neil S. Moore, M.D., St. Louis

At 3:45 p. m. the General Meeting will adjourn and the House of Delegates will convene.

GENERAL MEETING

Thursday, May 10, 1934—8:30 A. M. Crystal Room, Robidoux Hotel

Prepared Under the Direction of Dr. George H. Hoxie, Kansas City

Session on Tuberculosis

The Diagnosis of Primary (Childhood) Tuberculosis.....
.....Herbert L. Mantz, M.D., Kansas City

Treatment of Childhood Tuberculosis.....
.....Harry Berger, M.D., Kansas City

The Surgical Aspects of Pulmonary Tuberculosis.....
.....James L. Mudd, M.D., St. Louis

The Influence of Pneumothorax Treatment on Prognosis.....
....Andrew C. Henske, M.D., and Charles W. Ehlers, M.D., St. Louis

A Municipal Program for the Care of Tuberculosis.....
.....H. I. Spector, M.D., St. Louis

GENERAL MEETING

Thursday, May 10, 1934—8:30 A. M. and 2:00 P. M. Robidoux Hotel

Under the Auspices of the Kansas City Society of Ophthalmology and Otolaryngology in Cooperation With the Ophthalmic Section of the St. Louis Medical Society and the St. Louis Ophthalmic Society
Dr. John Green, St. Louis, Presiding

Session on Diseases of the Eye, Ear, Nose and Throat
Morning Session

Clinic on Mezzanine, Robidoux Hotel:

Dry Clinic With Demonstrations of Cases in Ophthalmology.....
.....Charles M. Swab, M.D., Omaha, Nebraska

Demonstration of Specimens of the Development and Anatomy of the Infant's Temporal Bone..Dean M. Lierle, M.D., Iowa City, Iowa

Nasal Allergy With a Consideration of Clinical Forms and Complications. Illustrative Cases..Orval R. Withers, M.D., Kansas City

Afternoon Session

Scientific Session in Crystal Room, Robidoux Hotel:

The Ocular Complications of Gonorrhea.....
.....Charles M. Swab, M.D., Omaha, Nebraska

Nasal Allergy: A Consideration of Clinical Forms and Complications.....Orval R. Withers, M.D., Kansas City

Yeast-Like Fungus Infection of the Conjunctiva. Lantern Slide Demonstration.....Avery A. Drake, M.D., Rolla

SCIENTIFIC EXHIBITS

Experimental Fat Necrosis.....M. Pinson Neal, M.D., Columbia

Photographs and Explanations of Skin Diseases.....
.....Thomas B. Hall, M.D., Kansas City

COMMERCIAL EXHIBITS

Robidoux Hotel

The A. S. Aloe Company, 1819 Olive St., St. Louis, Booth 9.

The A. S. Aloe Company features a complete line of surgical instruments, supplies and equipment. Of interest is a showing of Stille Rustless instruments at a special discount. Also a complete line of physical therapy equipment, diathermy and tube-gap cutting units and other special items are shown. The first showing of the Dr. Charles Robert Elliott Treatment Machine is offered. This device is the only appliance approved by Dr. Elliott for administering his internal heat treatment for pelvic inflammatory disease, a method that has received wide attention by the profession.

Bilhuber-Knoll Corporation, 154 Ogden Avenue, Jersey City, N. J., Booth 3.

The Bilhuber-Knoll Corporation shows several of their "Council accepted" products and all physicians attending the meeting are invited to visit the exhibit and study the products. Theocalcin, so valuable for the cardiac patient in the treatment of congestive heart failure and for relief of pain in angina pectoris; the circulatory and respiratory restorative, Metrazol, also Bromural and Euresol are displayed. Well informed representatives will be glad to give interested physicians a clear, concise discussion of these products and their clinical application.

Gerber Products Company, Freemont, Michigan, Booth 8.

Some interesting sidelights on the care and precautions necessary in the manufacture of strained vegetables to make them wholly satisfactory for infant feeding will be available at the Gerber Products booth. Gerber representatives, Mr. Dan O'Keefe and Mr. Kenneth Olthoff, will be glad to greet old friends or new and will be glad to explain why strained vegetables should be built as an infant food from seed selection through growing, harvesting and preparation. If you haven't seen the new Gerber item, ready-cooked, ready-prepared, strained cereal, ask to see a sample.

Goetze Niemer, Jenkins Building, St. Joseph, Space 1.

Surgical and hospital, roentgen ray and electro therapy equipment.

Lancaster Optical Company, 1114 Grand Ave., Kansas City, Space 2.

The Lancaster Optical Company believes the examining of eyes and prescribing of glasses is rightfully a part of the practice of medicine and should be done only by a medically trained eye, or eye, ear, nose and throat physician, and consequently renders service only to eye, or eye, ear, nose and throat physicians. Sole owners of the trademarked lenses known as "WideAngle," because they give clear vision from center to margin and whose distribution is confined strictly to eye, or eye, ear, nose and throat physicians.

Mead Johnson & Company, Evansville, Indiana, Space 7.

Mead Johnson & Company has on exhibit its complete line of infant diet materials including Dextri-Maltose, Mead's Newfoundland Cod Liver Oil, Mead's Viosterol in Oil 250 D, Mead's 10 D Cod Liver Oil, Mead's Viosterol in Halibut Liver Oil 250 D (liquid and capsules), Mead's Halibut Liver Oil, Mead's Brewers Yeast Powder, Mead's Brewers Yeast Tablets, Pablum, Mead's Cereal, Sobee, Mead's Powdered Protein Milk, Mead's Powdered Lactic Acid Milk, Powdered Whole Milk, Alacta, Recolac and Casec. There is also for the examination of physicians a complete line of Mead's services such as diets for older children, height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired. Representatives are on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

Merck & Company, Inc., Rahway, New Jersey, Spaces 4 and 5.

In the Merck booth is displayed such well-known preparations as PYRIDIUM for the treatment of urinary infections, NEOARSPHENAMINE for the treatment of syphilis, TRYPARSAMIDE for the treatment of paresis, STOVARSOL for amebic dysentery, DIGITAN for heart diseases, ERYTHROL TETRANITRATE for hypertension, BISMOSOL, a water soluble preparation for intramuscular use in syphilis and ARSENOFERRTOSE, a palatable, blood building tonic. The Merck booth is always an attractive center of interest. It is in charge of Mr. Veazey.

C. V. Mosby & Company, St. Louis, Space 6.

The C. V. Mosby Company, the Missouri publishers of medical books and journals, exhibits its complete line. Among the newer items displayed are Key and Conwell, "The Management of Fractures, Dislocations and Sprains"; Pottenger, "Tuberculosis in the Child and Adult"; Hertzler, "Surgery of a General Practice"; Horsley "Surgery of the Stomach and Duodenum"; Vehrs, "Spinal Anesthesia," and Hertzler, "Local Anesthesia." All of the special medical journals published by the Mosby Company are displayed. Physicians attending this convention are cordially invited to visit the Mosby booth and look over the books and journals.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

12th Annual Meeting, Cleveland, June 11-15, 1934

President, Mrs. James Blake, Hopkins, Minnesota.

President-Elect, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

10th Annual Meeting, St. Joseph, May 8, 9, 1934

President, Mrs. Hudson Talbott, St. Louis.

President-Elect, Mrs. William H. Goodson, Liberty.

Advisory Counsel, Dr. J. F. Harrison, Mexico.

The Woman's Auxiliary to the Missouri State Medical Association now has twenty actively functioning auxiliaries representing twenty-five counties. Some of the auxiliaries, as Vernon-Cedar or Livingston-Caldwell, represent more than one county as do the medical societies to which they are auxiliary.

The April *Bulletin* carrying the attractive program of the Auxiliary Convention in St. Joseph May 8 and 9 has gone to all members through their respective presidents. It is hoped that many auxiliary women and the wives and daughters of many other doctors will attend these meetings. We wish these might develop a strong sentiment favoring the organization of an auxiliary in all those counties not now represented in the state organization.

As this issue of The Journal goes to physicians in every county and this auxiliary department comes under the notice of women who might to the pleasure and advantage of themselves and the county medical societies have such an organization, some of the accepted reasons for an auxiliary are presented. The chief present functions of an auxiliary are:

Social.—To promote acquaintance and friendship among physicians' families that good fellowship may increase; to aid in entertainment when desired at meetings of the medical societies. Attendance as well as fellowship is promoted by the social functions of the Auxiliary.

Philanthropic.—To give community service, especially such service as is related to the work of the medical profession.

Educational.—To inform ourselves concerning questions of individual and public hygiene, community cooperation, medical and health laws and their administration, national, state and local.

Public Relations.—To aid the medical profession in its health education work with the public through the dissemination of authentic health literature, promotion of addresses by approved speakers, promotion of approved health projects through health seeking organizations; by promoting the distribution of *Hygeia* by individual subscriptions and by placing *Hygeia* in schools and public libraries and other desirable public places.

Periodic Health Examinations.—Recommended by physicians, insisted upon by life insurance companies, our Woman's Auxiliary is trying by precept and example to promote this important practice. "One out of six applications for life insurance is declined or postponed. The annual health audit will detect albumin or sugar, high blood pressure, slight cardiac disorder, incipient tuberculosis, any and everything else. Your family physician will do the rest. Get the disease before it gets you.

"If elevators are inspected regularly, why not one's mouth and teeth, one's heart and lungs?

"You have your car brakes tested, why not your kidney function? You have your batteries charged but you let your weight run down from disease."

Hygeia.—The House of Delegates of the American Medical Association at the Philadelphia Session in 1931, passed a resolution urging "The Woman's Auxiliary to the American Medical Association, including the county, state and national organizations, to recognize as one of its chief activities the promotion of the distribution of this publication (*Hygeia*) through Parent-Teacher Associations, boards of education, and similar bodies interested in education." *Hygeia* may well be considered as an educational, public relations or an independent project, or as all three.

Essay Contest.—As a feature which, in Missouri, has united the functions of the educational and public relations departments, the Essay Contest should be mentioned. This contest, sponsored first by the Auxiliary in 1932-33, had as a topic "Tuberculosis, Its Care, Cure and Prevention." Sponsored again this year of 1933-34, the topic is "What the Government, National, State, and Local, is Doing for Health." Carrying preparation of these essays into the grade and high schools of the counties having auxiliaries has served to make school children, their parents and their teachers aware of the incomparable progress scientific medicine has made and is making in the world to promote the knowledge and the nature of, and the care, cure and prevention of disease.

It is no wonder that a past president of the American Medical Association made this observation: "Wherever the medical fraternity has held out a helping hand to the Woman's Auxiliary it has been gratified to find that the work of the Auxiliary has flowed along safe and helpful channels and the results proved worthwhile."

KERATODERMA BLENNORRHAGICUM

John Godwin Downing, Boston (*Journal A. M. A.*, March 17, 1934), reports a case of keratoderma blennorrhagicum in which vesiculectomy and prostatotomy gave a favorable result in contrast with other forms of therapy. This case was shown at a meeting in April, 1930, at which time the patient was so emaciated and weak that it was necessary to carry him on a stretcher. He was again shown in November, 1930, at which time the patient had gained about 30 pounds (13.6 Kg.), showed no lesions, and was practically free from joint symptoms, although he still used a cane. After the operation vaccine therapy was continued, and it seemed to be more beneficial than it had been previously. It is possible that the mild eruption that he had on his first entrance to the hospital may have been a beginning keratoderma blennorrhagicum. It is likely that many eruptions associated with arthritis are frequently misdiagnosed on account of the rarity of the disease and the low index of suspicion.

MISCELLANY

Strauss Photograph

HERLUF G. LUND, M.D.

Dr. Herluf G. Lund, St. Louis, was honored with a buffet supper and the gift of a gold watch by the staff of the Lutheran Hospital, St. Louis, on the evening of April 6, 1934, at the Lennox Hotel in that city. The affair marked the culmination of twenty years continuous service by Dr. Lund as chairman of the staff.

Dr. Theodore P. Brookes presided and the presentation was made by Dr. Phelps G. Hurford with a response by Dr. Lund. Other addresses were made by Mr. Theodore Schroeder, Rev. Emil Hofius and Rev. Paul Koenig, of the board of directors of the hospital; Dr. Herman Nietert, Dr. Herman A. Hanser, Dr. Frederick O. Schwartz and Dr. Walter Siebert, of the staff. A congratulatory telegram from Dr. Robert E. Schlueter was received and read.

The short addresses in behalf of the recipient were chiefly laudatory and biographical and provided many facts hitherto unknown to most of those present.

A humorous poem was dedicated to Dr. Lund, the subject also of a caricature showing him as presiding officer. Both poem and drawing are herewith reproduced and attention is called to the coat of arms which displays two kidneys rampant and a bladder distended, indicating the field of urology in which he specializes.

"VATCH OUDT"

Ver von so a staff der chairman ist,
Tut all kinds schemers meeteh,
But vas to Lund gehappened hat
Tut einiges doch beateh.

Zeit zwanzig yahr' var chairman
Der Lund von jedes meeting
Und yelldt "Mach schwindt der business
Zeit lauft schnell und is fleeting."

Ehr hat kein watch damit zu checkeh
Die speeches from der staff
Who talkeh tun bis die cows heim comeh
Mein Gott! Es is to laff.

Und jedst while ehr kein tchob mehr hat,
Die members denken dran
Und gib Doc Lund a present
Voh ehr mit nehmen kan.

Im Lennox Hotel der party var,
Der chairman's points zu praiseh
Mit alte jokes; mit beer und schnapps
A little Hell zu raiseh.

Der present var ein finer watch
Gedressed in schone kleiter
Schwell gepolished sind gesicht und hands
Von gold sind allebeiter

Das presentation ging sehr smooth
Lund's face var rund und quaint
Und blusheh tut der bashful kerl,
Vie geschmiert mit rothes paint.

"This watch is sure a finer ding
(Appraisal mit sein auge)
Ich denk there is a catch dabei—
You guys mus ich etvas frage."

"Wie kommt es dan—with dieser watch
Your intentions sind doch gut,
Es seht nicht alles kosher aus
Als Ich retireh tut."

I haff it now, es kommit mir clear
Why you geschenkst me this potatah
Keine chain, but a moral hangt thereon
Ich will's elucidateh.

So's method im ihre vurruckheit,
Ich hocke mich yetzt im ecke
Am anderer staffs—but not on you
Ich solt der time gut checkeh.

F. O. S.

HERLUF I

BOOK REVIEWS

The International Medical Annual. A year book of treatment and practitioner's index. Editors: Carey F. Coombs, M.D., F.R.C.P. (the late); A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. Baltimore: William Wood and Company. 1933.

There is so much difference between the practice of medicine in England and in the Middle West of the United States that such an annual review is chiefly interesting for the difference in the viewpoint of its writers rather than for its help to the general practitioner in Missouri. For example, the physiological table of drugs and preparations in the 1932 British "Pharmacopoeia" are interesting to us only by way of contrast.

Another illustration is in the subject of bronchiectasis we find a discussion of phrenic avulsion by W. H. Wynn and surgical treatment by A. Tudor Edwards. The latter says that bronchoscopic aspiration is somewhat in the same category as postural drainage in that it improves patients temporarily and thereby slows the process of the disease. The conclusion of Dr. Edwards seems to be rather against surgical interference than for it.

Thus in glancing through the book the reviewer found many such articles interesting to him in that they showed the reaction of our English cousins to the newer suggestions of enthusiasts.

It is well printed and bound and on excellent paper. G. H. H.

Orthopaedic Surgery. By Walter Mercer, M.B., Ch.B., F.R.C.S. (Edin.), F.R.S. (Edin.) Assistant Surgeon, Royal Infirmary, Edinburgh; Surgeon, Chalmers Hospital, Edinburgh. With a foreword by John Fraser, M.C., M.D., Ch.M., F.R.C.S.E. Regius Professor of Clinical Surgery in the University of Edinburgh. Baltimore: William Wood & Company. 1933.

Mercer is not an orthopedic specialist but rather a general surgeon who has been particularly interested in orthopedics and after one has perused this work from cover to cover he is impressed with this author's knowledge of the subject at hand.

Following a most excellent foreword by John Fraser the treatise opens with an introduction to the subject of orthopedic surgery giving some excellent historical and bibliographical data.

In the twenty-three chapters which follow the author treats with even the most minute subjects of orthopedic surgery in a manner understandable to all. As Mercer so rightly says "An endeavor has been made to describe the technic of operations with sufficient detail to enable the young surgeon to perform them with some confidence."

Throughout he uses American methods and references freely and one is impressed with his broad viewpoint on the many procedures. His chapters on affection of the bones and joints are particularly good and the chapter on chronic arthritis is worth the reading by any practicing physician whatever his specialty.

Many new and excellent conceptions are given in the chapter on the foot and one is impressed by the masterful way in which the author has handled the subject of infantile and spastic paralysis.

Certainly this book is one which should be on the desk of every orthopedic surgeon if not in the library of every general practitioner. R. L. D.

The Failing Heart of Middle Life. The Myocardosis Syndrome, Coronary Thrombosis, and Angina Pectoris. With a section upon the Medico-Legal Aspects of Sudden Death From Heart Disease. By Albert S. Hyman, A.B., M.D., F.A.C.P., Cardiologist, Beth David and Manhattan General Hospitals, etc., and Aaron E. Parsonnet, M.D., C.M., F.A.C.P., Attending Physician and Cardiologist, Newark Beth Israel Hospital, etc. With a preface by David Riesman, M.D., Sc.D., F.A.C.P., Professor of Clinical Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania. With 166 illustrations, some in colors. Philadelphia: F. A. Davis Company. 1932. Price $5.00.

This is a most interesting and concise yet complete clinical presentation of the subject. The reader is first impressed with the importance of the proper interpretation of preclinical symptoms as obtained from the patient's description of what to him are unimportant variations of normal health, and their proper treatment in order to prevent an unnecessarily early development of disabling cardiac syndromes.

Coronary disease and angina pectoris are discussed from all clinical angles with just enough theory and historical matter to impress the reader with the wisdom of the authors' conclusions. The relation of these two clinical entities to each other and other forms of heart disease of middle life are given in detail.

Of necessity older clinicians learned the great value of first-hand clinical observations before the newer and more expensive diagnostic aids received general acceptance. This book will help recent graduates to grasp the importance of these clinical observations and make them realize that rational therapy may be given without the advantages of expensive diagnostic procedures; and, in fact, such therapy is often required before pathological changes are revealed by the newer methods if the patient is to receive the best that modern medicine has to offer. E. L. P.

Surgery Anatomy. By Latimer Callander, A.B., M.D., F.A.C.S., Assistant Clinical Professor of Surgery and Topographic Anatomy, University of California Medical School; Associate Visiting Surgeon to the San Francisco Hospital. With a Foreword by Dean Lewis, M.D., Sc.D., LL.D., F.A.C.S. 1115 pages with 1280 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1933. Price $12.50.

The book is not only an excellent textbook for the student of applied anatomy but also is a very valuable reference book for the surgeon. The entire subject of surgical anatomy is interestingly covered and well illustrated. The anatomy of the various regions and organs is thoroughly discussed and is immediately followed by a consideration of the surgical aspects. The manner in which the author has correlated anatomy, pathology and surgery makes this an outstanding book.

E. V. M.

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IN DEFENSE OF ORGANIZED MEDICINE

PRESIDENT'S ADDRESS

W. L. ALLEE, M.D.

ELDON, MO.

In view of the happenings in the general economic history of our nation in the last year and that necessarily our usual methods of medical care have had their share of stress and strain, I feel it may be of interest to consider our present status and to evaluate some of the citations and propaganda against organized medicine. We are accused of being stubborn and reluctant to face any change; we have been questioned by some as to our competency to control and direct the practice of medicine through proper channels. The frame of mind of these ardent advisers from without and a few within our professional ranks apparently indicates a profound distrust of the ability of the average doctor and his clientele to look after themselves and would turn us over to a small group of paternalistic bureaucrats and lay manipulators to dictate our professional and economic life.

A brief mention in a general way of the advances accomplished under our traditional methods of medical practice will prove that we have not lagged nor been found wanting but that we have contributed more than any other profession or organized group to the benefit of our fellow men. The more important gifts to the people that the great strides medicine has made have come in the form of the vaccines, prophylactic serums, anesthesia, antiseptic surgery, sanitation and the new art in therapeutics. These and other great discoveries have altered the conditions of living more profoundly than have any social or economic advance and have come one upon the other relieving the age long and constant threat of disease and made possible the clean and healthy modern cities and homes. This was a revolution made practical by organization, cooperation and a broadened and more rigorous medical education.

However, the application of these discoveries is still faulty. There has been great advance in sanitation yet the science of medicine is still far in advance of the sanitary application. The knowledge of preventive medicine is not satisfactorily applied. It is the problem of the general practitioner to be more assiduous in educating his clientele and more persistent in giving them the benefit of his knowledge of preventive medicine. There is still typhoid fever, tetanus and rabies as well as a fair number of diphtheria victims and even epidemics of smallpox in communities with adequate medical service.

Average public intelligence has increased, superstition is steadily being diminished and public health education has blasted away many careless methods of the past. This is probably responsible for the fact that in no other profession or business are there so many channels being used to divert from the proper source their rights of legitimate business and income as we find directed against the members of the medical profession.

In the rural districts at least we have not assumed our share of the responsibility of community education in prophylaxis but have allowed public health representatives to share most of the burden and have placed upon them the large share of community immunization. The result has been dissatisfaction and grief because many of our patients financially sound have taken advantage of the numerous health clinics to secure free health service to our economic detriment. Every physician wants to see the diseases which cause such terrible suffering and are dangerous to life stamped out wherever possible, and properly controlled if it is not possible to entirely eradicate them.

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

But the physicians should be the guiding factor of the cases where the public are able to pay for such service.

The scientific program for this meeting would do honor to any medical society. The essayists on this program represent the rare combination of intelligent experience and extensive knowledge in their respective subjects and the ability to present them clearly. Most of us know from experience the time and effort expended in preparing a subject for presentation. I trust we will show our appreciation by being prompt and continuous in our attendance during the entire session.

We should be more actively interested in our county societies and assist in planning through them any problem concerning the physician within their jurisdiction. We could most profitably devote more time in popularizing the more important facts of preventive medicine to the end that the public would demand and, equally important, pay for it. It is said that less than 1 cent out of each tax dollar is spent by the people of our nation for public health. We could cooperate more fully with and be more active in our support of the public health department in informing the taxpayer that public health is purchasable and the cost is not excessive. In many counties the court appoints one or more doctors at a small salary to dispense medical service to the indigent and in practically all instances with totally unsatisfactory results. Uninformed society feels that it has discharged its responsibility to the indigent through the generosity of the probate court. With more expenditure of group energy we can arouse public sentiment and through the people cause local officials to agree that the protection of the public health is as important although not as costly a social responsibility as the education of the mind. I realize that we have all experienced the difficulty of interesting the local government to carry the financial burden without placing official red tape and politics on scientific progress and skilled service.

No practitioner of medicine who has given any thought to medical economics believes for a moment that the patient's difficulty in paying medical costs is primarily or basically due to excessive fees on the part of the physician. We know however that there are large groups of people though not indigent who cannot meet the average cost of skilled medical service and this presents a vexing problem. Our traditional ideals cause us to reject emphatically any suggestion that these people should be given inferior service. The ferment working in our medical system points toward some type of health insurance. As we all know many countries of Europe have adopted some form of governmental supervised sickness insurance, voluntary in a few instances and compulsory in others. The result is that they have the poorest medical service of any people and inferior individuals entering the schools of medicine. Dr. Edwin Leik, a German, says "Only parasitic physicians or pure fools join in the praising of compulsory health insurance." In view of the fact that we recognize in the struggle for existence that we can do without pride more readily than without meals we must admit that many are tempted by a fixed stipend even if meager. Fortunately we still have a comfortable majority in the profession with a love for the art of medicine that transcends all hunger, ambition and material wealth who will continue as "rugged individuals" to pilot ailing humanity through the sequence of life from birth to growth and manhood, to the peaceful harbor of decline and the final issue.

MEDICAL LEADERSHIP

ADDRESS OF PRESIDENT-ELECT

C. T. RYLAND, M.D.

LEXINGTON, MO.

It is with a fitting and I hope a becoming degree of humility and embarrassment that I undertake the duties of the President of this our Association. No one realizes more than I my weaknesses and lack of ability to take up the duties of this office at any time but particularly is this true at the present when we, the medical profession, are expected, or rightfully should be expected, to make decisions and solve problems that will affect not the physician himself or the medical profession only but society as a whole. In my opinion the medical profession exists only for the purpose of serving society and humanity and I believe the question of the care of the sick should be solved by the medical profession. If these problems are left to or fall into the hands of the nonprofessional groups, they will be solved you need not doubt but we fear not to the best advantage of the public and probably at the expense of the medical profession.

Someone has said in speaking on this subject that the doctors know what is needed

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

but their plans lack bigness—their plans are little plans. "It is clear that the problems of the medical security of the American people cannot be solved by science alone and certainly cannot be solved by vision alone. The problem will be solved by a combination of scientific understanding of what medical practice is and also by a vast social vision, a vivid sense of responsibility to all the millions who are medically neglected." To have a knowledge of the needs of the times in carrying out its plans to meet these needs the profession must have organization of the highest type. It has been truly said that the medical profession is better organized than any other profession or business in the land but the great mass of the public does not realize or appreciate what has been accomplished by our organization and of this they must have full knowledge that we may thus inspire in them confidence in our ability and willingness to solve the present day problems and future needs to the unselfish advantage and help of society.

For ourselves, we must recognize these problems are facing us and be ready to take the matter in hand or at least be prepared to direct the way. No one can deny that the times have changed and are ever changing and we must, for the sake of humanity as well as for the sake of our own profession, be ever ready and willing to take and direct the proper and wisest course. Some from our own profession must be the leaders, men who have the heart and mind and vision; and we of the rank and file must be ready and willing to give them the whole-hearted help and support necessary to the success of any undertaking. And it is only through the right kind of organization that we can hope to follow and cooperate with the chosen leaders. Let us continue to study together the needs of the times and of the future in a large way and may it no longer be said of us that our plans are little plans but that we, knowing the needs, have wisely and unselfishly devised plans that will supply those needs in the big and unselfish way the members of the medical profession have always done.

And so, gentlemen and doctors, it is my firm belief that the problems of the future of the practice of medicine and the care of the sick can be and will be settled by the medical men without outside help or interference if we but exercise our hearts and minds and our ability to act.

I am outlining no definite policies or plans but I promise you my best efforts of mind and heart and I bespeak the whole-hearted help and cooperation of every member of the Missouri State Medical Association.

MUCOCELE OF THE APPENDIX FOLLOWED BY PARTIAL OBSTRUCTION OF THE VENA CAVA

J. E. DEWEY, M.D.
AND
J. N. WAKEMAN, M.D.
SPRINGFIELD, MO.

Since the occurrence of mucocele of the appendix followed by partial obstruction of the vena cava is comparatively rare, we were prompted to report this case.

REPORT OF CASE

W. E. T., male, dentist, aged 54, on July 22, 1933, complained of a dull aching pain in right lower quadrant and right groin. He had a feeling of distress in

Fig. 1. Swelling of extremities three months after operation.

Read before the Burge Hospital Staff, Springfield, Mo., January 11, 1934.

the epigastrium, felt nauseated but did not vomit. Within one and one half hours bowels had moved three times. At 8 a. m. the temperature was 98, pulse 74. There was slight rigidity of the right rectus muscle. Blood pressure 130/80.

At 6:30 p. m. temperature was 100.2, pulse 100, respiration 16. There was tenderness and moderate rigidity of the right rectus muscle. Physical findings negative except for a small right inguinal hernia. Hospitalization advised.

Past History.—Similar attack of pain two months ago but did not consult a physician.

Family History.—Negative.

Habits.—Regular. Does not use tobacco, intoxicants nor coffee.

Laboratory.—Urine negative. Blood count (14 days later), WBC 17,050; differential count polymorphonuclears 81 per cent, lymphocytes 15 per cent, mononuclears 4 per cent.

Diagnosis.—Acute appendicitis.

Operation advised and abdomen opened through a gridiron incision. Cecum large and considerably congested, several bands surrounding cecum. At the end of the muscle band of the cecum, a cord-like structure was found running downward terminating in a large cystic mass approximately 11 cm. long by 2.5 cm. in width. This mass extended downward into the pelvis into the region of the iliac artery. This cyst was filled with a white mucogelatinous substance.

This substance was removed and a portion of the cyst wall excised. The cyst was packed with gauze and a cigarette drain inserted along the side of the gauze. Wound closed with twenty day catgut and silkworm.

Pathological Report.—One hundred c.c. of material with numerous small yellowish opaque masses. One large mass semihemorrhagic but for the most part yellow and opaque. There was also thin fibrous sheet 2 by 4 cm.

Microscopical Findings.—Section showed remains of wall of appendix with destruction of mucous membrane. The cyst was dense fibrous tissue almost completely hyalinized. One of the firmer masses in the gelatinous exudate showed a little columnar epithelium. Most of the section was granulation tissue and myxoma-like tissue.

Diagnosis.—Mucocele of appendix. Pseudomyxoma.

Patient was discharged from the hospital in three weeks. About five weeks after operation there developed rather suddenly a swelling of right leg that extended to left leg but in not so great a degree, accompanied by considerable pain in right leg.

Fig. 2. Disappearance of swelling seven months after operation.

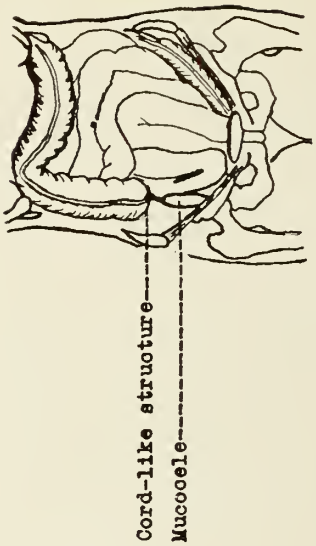

Fig. 3. Mucocele of appendix.

Nephritis or myocardial weakness was suspected but the urine was negative and a heart lesion could not be demonstrated.

Dr. E. G. Wakefield, Springfield, Mo., saw this patient in consultation, and made a diagnosis of probable vena cava obstruction distal to the renal veins, with favorable prognosis. The condition has now disappeared and patient is apparently in complete health.

Dr. E. G. Wakefield and Dr. Chas. W. Mayo[1] state that "The sudden onset of bilateral edema extending to the upper portions of the legs, in the absence of cardiac or renal failure, is usually indicative of obstruction of the vena cava.

"Superficial collateral circulation is evidence that the deep collateral channels are adequate."

COMMENT

Since Virchow described mucocele of the appendix in 1863 there have been approximately 170 verified cases reported in the literature.

The mucocele was not removed in this case on account of its deep situation in the pelvis and its apparent attachment to the iliac artery.

According to the literature, mucocele of the appendix is diagnosed accidently at operation or at postmortem.

SUMMARY

A case of mucocele of the appendix with partial obstruction of the vena cava is presented.

1. Wakefield, E. G., and Mayo, Charles W.: Obstruction of Vena Cava Distal to Renal Veins, J. Missouri M. A. **31**:93 (March) 1934.

Satisfactory termination of this case illustrates that in partial obstruction of the vena cava below the renal veins, adequate collateral circulation may be established.

352 Medical Arts Building.

THE ROLE OF INFECTION IN CHRONIC NONSPECIFIC ARTHRITIS

BEN D. SENTURIA, M.D.

ST. LOUIS

To the vast majority of students of the chronic nonspecific arthritides these diseases fall into two fairly distinct categories; namely, atrophic (rheumatoid, chronic infectious, proliferative), and hypertrophic (osteo-arthritis, degenerative).[1, 2, 3, 4, 5, 6, 7] As the latter is uniformly considered to be a degenerative process in which trauma, metabolic disturbances and the wear and tear of advancing age are of prime importance, and in which infection occurs infrequently and only as a complication, this paper will be limited to a consideration of the part played by infection in the pathogenesis of atrophic arthritis.

To Bouchard[8] is given the honor of first suggesting the term "infectious arthritis" as early as 1881; while to Schüller[9] is accorded the distinction of first isolating (in 1892) a micro-organism (a short, thick bacillus with bipolar staining) from the synovial fluid and membrane of cases included in the group under discussion. Since then many investigators have endeavored to establish by a confirmation of Koch's postulates a type of bacterium as the etiological agent of the disease —only to have their efforts nullified by the work of other competent observers. In consequence several schools of varying opinion have developed regarding the extent to which infection can be deemed the causative factor.

The introduction of the theory of focal infection in 1912 by Billings[10] with its relation to joint disease encouraged advocates of the infectious nature of atrophic arthritis to search further for causative organisms. Accordingly, with improvement in bacteriological technic, investigators like Rosenow,[11] Weatherby and Clawson,[12] Burbank and Hadjopoulos,[13] Cecil,[14] and Gray, Fendrick and Gowen[15] have concluded from their researches that the streptococci are the precipitating factors in the causation of atrophic arthritis. They were able in a large percentage of cases not only to isolate these organisms from the synovial fluid, from the neighboring lymph glands and from the blood stream, but also to produce by injections into the veins of rabbits a disease of the joints similar to that found in man; further, they recovered the organisms from experimental animals. In addition, Cecil and his collaborators isolated from patients with atrophic arthritis an identical attenuated Streptococcus hemolyticus from the tonsils, the blood stream and the synovial cavity, and found a high titre of agglutinins of this bacterium in the patients' sera. However, there is a lack of agreement among these investigators regarding the type of streptococci to be held responsible for the disease. Unfortunately, on the other hand, observers like Hench and Bernhardt,[16] Dawson, Olmstead and Boots,[17] Nye and Waxelbaum,[18] Fischer and Wehrsig,[19] Coste and Forestier,[20] and Blair and Hallman[21] were not able to isolate, except in a negligible number of cases, any organisms whatsoever from the various tissues described above. Dawson and his associates,[22] however, do find a high titre of agglutinins against strepticocci in a significant number of the sera in atrophic arthritis.

In order to find clarity in this maze of contradictory data, we must look to the history of joint diseases. Such a review will afford both a wholesome perspective and an indispensable guidance toward a solution of the problem. Although ancient authors recognized the differences clinically between gout and arthritis, the two diseases were confused until the seventeenth century, mainly because of the doctrine of humoral pathology which regarded them as a product of the attempt of the body to eliminate the peccant humors through the joints. It was not until the last half of the seventeenth century when Guillaume de Baillou (Ballonius)[23] emphasized the differences between gout and "rheumatism" that these diseases were again placed in separate categories. Sydenham,[24] apparently unaware of Ballonius' writings, likewise stressed the distinction. Following their example medical writers began to describe such definite entities as tuberculous arthritis, gonorrheal arthritis, traumatic arthritis, septic joints and the neurotrophic arthropathies associated with tabes dorsalis and syringomyelia. About 1890, Sir A. E. Garrod[25] divided the joint diseases of unknown origin into two groups, the osteo-

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From the Arthritis Division of the Aaron Waldheim Health Clinic, The Jewish Hospital, St. Louis.

arthritic and the rheumatoid, thus marking a milestone in the progress of classification.

Pathologically, these two divisions are definitely established. Briefly, the primary change in hypertrophic arthritis is a degeneration of the articular cartilage with subsequent new bone, or osteophytic formation without the development of true ankylosis; while in atrophic arthritis the initial change is a synovial and marrow connective tissue proliferation showing small round-cell infiltration with focal collections of lymphocytes, cartilage destruction by the synovial pannus and subcartilaginous granulations with fibrous, cartilaginous and osteoid tissue proliferation, and with the development of fibrous, cartilaginous or bony ankylosis. Because of the attempt to subdivide the rheumatoid (atrophic) group on an etiological, or most ideal basis, there has resulted the "rout on rout, confusion worse confounded" that obtains at present. Goldthwait and his associates[26] as early as 1904 became convinced that this group contains cases which are of an unmistakably infectious nature that should be called "chronic infectious arthritis," while other cases are not and should be designated as atrophic (rheumatoid) arthritis. They suggested that perhaps metabolic, endocrine, circulatory or neurotrophic disturbances might be the underlying causes. Similarly, the English and German authorities[27, 6] have attempted a further subclassification as indicated by their respective designations of primary and secondary rheumatoid arthritis, and "der primäre und sekundäre chronische Rheumatismus." The "secondary" type refers to those cases of an infectious nature; the "primary" is reserved for those of unknown etiology.

One of the concepts of the American Committee for the Control of Rheumatism[28] reads as follows: "It is the opinion of the Committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The Committee inclines to the belief that any of these factors, or certain combinations of these factors, under appropriate circumstances, may basically underlie the onset of the disease." From the foregoing the extreme difficulty of determining the actual percentage of cases that can be considered due to an infection is readily appreciated. We may conclude from the clinical picture of the frequent onset with an elevation of temperature, of the development of febrile periods during the course of the disease, of the signs of inflammation in the joints and of the migratory nature of the syndrome; from the laboratory findings of an increased sedimentation rate, of a "shift to the left" at times in the Schilling differential leukocyte count, of a high titre of agglutinins in the sera, of the positive cultures obtained from the blood and joints and of the frequent presence of foci of infection; and from the pathological picture of a chronic inflammatory process involving the synovial membrane, capsule and medullary connective tissue, that in about 60 per cent of the cases of atrophic arthritis infection plays a dominant causative role. Yet, in the uniform absence of macroscopic suppuration and of polymorphonuclear leukocytes microscopically, it is difficult to believe as some authors maintain that the process is produced mainly by bacterial metastases from foci of infection to the joint cavities. Another observation that militates against the theory of direct invasion of the joint cavity by organisms is the rarity of rheumatoid arthritis developing concurrently in cases of subacute bacterial endocarditis where streptococci and other micro-organisms are constantly thrown into the blood stream.

We are thus forced to account for the influence of bacteria on other grounds. Toxemia, as yet little understood in relation to the rheumatoid symptom-complex, has been postulated as an important factor. From the brilliant researches of Klinge[29] in Germany who has produced atrophic arthritis in sensitized rabbits by repeated injections of dog serum and horse serum, the factor of allergy must be seriously considered as a causative mechanism in the production of this type of arthritis. Acute inflammation of the joints has long been recognized as a sign of serum sickness. The latter two methods may account for the failures to isolate organisms from the blood and articular cavities yet explain the striking results obtained in certain cases with the removal of foci of infection and with the institution of vaccine therapy.

There still remains a large group of about 40 per cent of the cases in which infection apparently is not a factor in the causation of the disease. No matter whether the predominant underlying disturbance is neurocirculatory, endocrine, metabolic or dietary, the therapeutic failure of eradication of niduses of infection and of vaccines can be reasonably explained. These are the cases that should be called atrophic (rheumatoid) arthritis as distinct from chronic infectious arthritis. And it is these, together with the

infectious type in an advanced stage, which as a rule resist notoriously all types of therapy. It is confidently expected that with increasing knowledge of the action of the sympathetic and circulatory systems, of the glands of internal secretion, of the effects of gastro-intestinal dysfunction and of abnormal metabolic processes, there will emerge a better appreciation of the rheumatoid group as described. With these discoveries will come prevention and early rational treatment which will forestall the ravages of this refractory disease.

SUMMARY

To sum up, there is sufficient evidence to warrant the belief that in approximately 60 per cent of the cases of atrophic (rheumatoid) arthritis, infection, principally with streptococci, exerts the dominant causative role in a predisposed individual, although as yet these organisms have not been conclusively established as the specific etiological agents. The exact nature of their action is still undetermined; whether by direct invasion of the articular cavity, by toxic influence from a distant focus or by the mechanism of sensitization of the synovial membrane and medullary connective tissue to the products of bacterial growth. The term "chronic infectious arthritis" should be limited to these cases. For the remaining 40 per cent of the cases of arthritis in which infection apparently does not enter, the term "atrophic" (rheumatoid) should be employed. The factors involved in this type are at present little understood. From a brief review of the history of the classification of joint diseases it has been shown that as our knowledge has increased new categories have been established. One is now justified in feeling that as our understanding of the pathological physiology and biochemistry of the neurocirculatory and endocrine systems, and of abnormal metabolic processes develops this group will be further subdivided.

As the opinions expressed in this essay have been based largely on controvertible data instead of incontestable facts, no more appropriate conclusion can be presented than the aphorismic dictum of Associate Justice Brandeis[30] that "an opinion yields later to the impact of facts unforeseen."

1119 Missouri Building.

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TINTED LENSES: THE PRESENT DEAL

W. W. Coblentz, Washington, D. C., (Journal A. M. A., April 14, 1934), states that, while during the past two years there has been some improvement in the fairness of the claims made in the literature advertising tinted lenses, there is still a long way to go in the presentation of relevant facts as distinguished from unproved theories. It is a safe guess that these advertisements are not seen by many undiscriminating laymen but are read mainly by trained ophthalmologists. It would therefore be a sad reflection on the intelligence of such readers to asume that they accept the "ballyhoo" part of the advertising as proved facts of importance in their profession.

TREATMENT OF APPENDIX ABSCESS

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The reported increase in mortality of appendicitis and its complications in the last thirty years has revived an active discussion of this subject in recent medical literature. Between 1900 and 1929 statistics show that the mortality rate in the registration area of the United States has increased from 9.7 to 15.2 per cent per 100,000 population. It hardly seems possible that these figures show the true facts since physicians and surgeons are better educated than they were thirty years ago; appendicitis has been extensively studied and is certainly better understood and more readily recognizable, and an increasing percentage of the laity knows and fears the consequence of the disease. Are the statistics incorrect; is the disease gradually growing more virulent, or is the treatment of appendicitis and its sequelae growing increasingly inefficient? We may well doubt any steady and increasing change in the virulence of appendiceal infection but there may be justifiable grounds for suspicion that the statistics have not told the entire truth or the treatment may not have been up to the standard. It seems entirely reasonable that the diagnosis placed on death certificates from which our national statistics have been compiled may be slowly becoming less unreliable as a better knowledge of appendicitis has developed through the years. It also seems equally reasonable that the increasing number of operators who consider themselves surgeons may have increased the mortality. In the instance of the statistics, the increasing accuracy of diagnosis offers praise for medical learning but inexperienced and injudicious operating can only bring condemnation to the profession. Even though the reasons for the increasing mortality rate may be at present unexplainable, the evidence of a growing death rate should stimulate a close scrutiny of the present methods of treatment.

Since appendicitis was first recognized as a surgical disease the best time for operation has been the subject of some difference of opinion and often a topic for controversy. It has been easy for some to adopt the slogan that "immediate operation is indicated as soon as a diagnosis of appendicitis is made." Unfortunately, appendicitis and its complications, like most diseased conditions, cannot be treated by slogans. General rules can be applied only when subject to modification as judgment may dictate.

It is generally agreed that a well defined appendix abscess should be drained, but the mere fact that a diagnosis of appendicitis is made and a mass palpated in the right lower quadrant is not an indication for immediate surgery. In the teaching of surgery of the appendix students should be impressed with the fact that as long as the disease remains within the appendix the entire diseased process can be removed by operation with a very low mortality; but when infection spreads beyond the appendix another disease has developed with different clinical manifestations, different pathology, different dangers, different mortality and indications for different treatment. Frequently patients enter the hospital with a typical history of acute appendicitis 4 to 8 days previously with a localization of a tender area in the appendix region. Examination reveals a mass of varying size. The disease is no longer a simple appendicitis. What is the safest treatment for such a condition? To operate upon a mass at the site of the appendix which may or may not be a developing abscess and which nature is safely controlling could hardly be anything but meddlesome surgery. Quite a high percentage of such cases will make a complete clinical recovery when given proper conservative treatment. Surgical intervention exposes the patient to peritoneal contamination thus converting a local into a spreading peritonitis. By such ill-timed surgery the morbidity is not decreased and the mortality is often increased.

An early localized peritonitis or developing appendix abscess may be treated conservatively by the following outlined method:

1. Nothing by mouth if there is any distention until the distention is controlled.
2. Distention should be treated by an indwelling Levine nasal tube with constant suction. The patient should be permitted to drink water ad libitum when the suction apparatus is functioning.
3. Raise head of bed, placing the patient in a semisitting posture.
4. Apply moist heat to the abdomen.
5. If distended, give morphine regularly every 3 or 4 hours in sufficient dosage to produce continuous drowsiness.
6. Sodium chloride solution should be given by intravenous drip or hypodermoclysis in quantity sufficient to prevent dehy-

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dration and maintain the blood chlorides within normal limits.

7. Glucose should be given by venoclysis in 5 per cent solutions if, because of distention, the intake of food by mouth is prevented. The total intake of glucose and sodium chloride solution should usually not be more than three liters daily.

8. A rectal tube may be used to aid in the elimination of colonic gas. Proctoclysis is not recommended during the height of the disease.

9. When the distention subsides the indwelling nasal tube may be removed and liquid diet started. The tolerance of the stomach and small intestines may be tested by clamping the nasal tube for intervals of 3 to 4 hours before it is finally removed.

10. When the temperature has been continuously normal for 4 days the patient may be allowed out of bed and may leave the hospital within a week.

11. If, instead of subsiding, the mass increases in size and develops into a well defined abscess, drainage is indicated. The abscess should be drained extraperitoneally through a small incision when possible. A small percentage may be drained through the vagina or rectum. If the free peritoneal cavity is opened when the incision is made it is safer to pack gauze down to the abscess wall, making a sealed channel to the body surface through which the abscess may be drained later. No effort should be made to remove the appendix when a localized appendix abscess is drained.

12. It is considered conservative surgery to advise patients to return for appendectomy in three to six months after abscess drainage.

The above treatment must of course be modified to suit the individual patient. Many require little more than a liquid diet, an occasional sedative and rest in bed.

918 Medical Arts Building.

Joseph A. Freiberg, Cincinnati (Journal A. M. A., Jan. 13, 1934), states that the diagnosis of congenital dislocation of the hip may be made during infancy, before the age of 6 months, by simple methods of observation and examination. Up to the age of 6 months, reduction of congenital dislocation of the hip may be accomplished by gradual abduction of the legs by one of several methods. The original manipulative reduction of Paci is still the most satisfactory method in infants more than 6 months of age. Soiling of the postoperative cast may be prevented, thereby eliminating the principal reason that has been brought forward for deferring reduction until the child is 2 years of age. In infancy, reduction of congenital dislocation of the hip is easily accomplished by closed or manipulative methods.

PERFORATIONS OF THE LABIA MINORA

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Perforation of the labia minora is a condition about which little information can be obtained from the literature. That it is not as rare as may be supposed is apparent from the fact that in the last seven years the writer has observed five cases, three of which are herewith reported. Occasionally this condition is present without the patient having any knowledge of its existence or having suffered the least discomfort from its presence or development.

Perforation may be due to one of several etiologic factors the most frequent perhaps being syphilis, traumatism and congenital malformation; although malignancy, tuberculous and chancroidal ulceration, and granuloma inguinale may also be causative factors.

When perforation is due to syphilis it is usually the result of the third stage manifestation of the disease which may or may not be active locally at the time of observation. In the former circumstance a chronic ulcerative process inflammatory in nature involves portions or the entire extent of the margin of the perforation or is present elsewhere upon the external genitals, while in the latter only the defect remains to suggest the possibility of previous ulceration. The active lesion does not bleed easily and the associated induration involves only the immediate site of the ulcer. There is usually an associated and persistent nonpitting lymphedema of the surrounding tissues and often of the entire vulva.

The margins of perforations due exclusively to malignant ulceration are ragged and friable; they bleed easily and show no tendency to heal. Malignancy, however, often develops upon a chronic inflammatory base and may therefore arise somewhere along the partly healed margin of a perforation due to other causes. The associated induration often extends for a considerable distance beyond the site of active ulceration. Little diagnostic significance can be placed on other local signs and symptoms since they are often very similar whether due to syphilis or cancer. Thus in both conditions there may be a nonpitting vulvar lymphedema, enlarged inguinal lymph glands, etc.

Traumata sustained during labor con-

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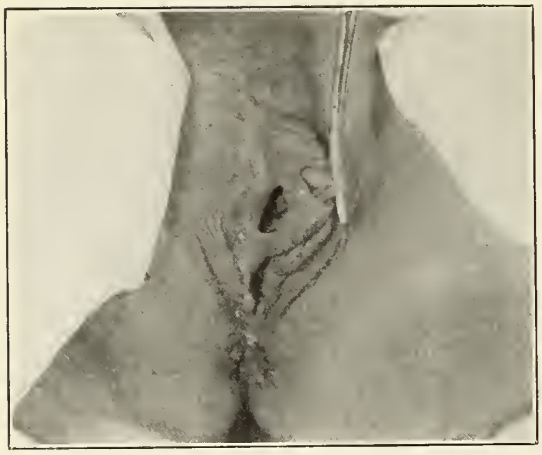

Fig. 1. Case 1.

stitute the most frequent form in which injuries may cause perforation of the labia minora. Thus, there may be severe pinching of the labia by reason of their accidental inclusion in the lock of forceps employed in effecting instrumental delivery. Under such circumstances local necrosis may develop subsequently and terminate in perforation. This accident might easily be overlooked during the early puerperium unless close inspection is made at that time since its symptoms may be overshadowed by the general vulval soreness and the pain of the usually associated perineal lacerations. The labia minora are particularly prone to suffer injury during labor when they are the seat of a marked local edema. This causes so great a reduction of local tissue resistance that secondary infection of injured areas may readily produce acute ulceration and perforation.

REPORT OF CASES

Case 1. M. W., aged 54, was admitted to the St. Louis City Hospital on August 16, 1930, because of ulceration of the cervix and external genitalia. The patient had been married several times and had a total of five children, two of which are now dead. There had been several previous admissions to the hospital during which at different times the following diagnoses were made: Staphyloma of the cornea, corneal ulcer, complete blindness, complete deafness, polyuria, urinary incontinence, chronic myocarditis, senility and senile dementia. At the time of the present admission the patient presented marked hypertrophy and perforations of both labia minora. The perforations varied in size from 1 centimeter in diameter to 2½ centimeters in diameter, and were so numerous that they gave an almost sieve-like appearance to both labia. The margins of the majority of these were perfectly smooth showing no ulceration or associated induration; however, there was a definite loss of epithelium affecting the vaginal mucosa along the course of the urethra though the denuded area did not bleed on examination. There was, furthermore, a crater-like ulcer on the anterior lip of the cervix. This presented no associated induration, bled only slightly on manipulation and showed very little granulation tissue. A nonpitting edematous infiltration involved the clitoris and upper portions of the labia minora and majora. Microscopic study of tissue sections revealed only a chronic inflammatory change. The Wassermann was negative on repeated tests.

Case 2. D. K., aged 42 years, was admitted to St. Louis City Hospital No. 1 on May 5, 1932. The complaint on admission was perineal itching associated with ulceration of the labia. The past history was relatively unimportant, the patient denying any previous serious illnesses. There was one pregnancy four years previously which terminated in spontaneous abortion

Fig. 2. Case 2.

Fig. 3. Case 3.

at the second month. General physical examination revealed pulmonary tuberculosis with cavity formation. The local lesion began twenty-five years ago with what the patient described as a scratch on one of the labia. Subsequently, perforations of both labia developed rather insidiously without causing the patient any discomfort. Four months prior to the present admission a definite ulceration was noted at the margin of a rather large perforation of the right labium minus. This ulcerated area gradually increased in size. There was associated itching of the labia and entire vulval region but no pain. On examination several perforations involving the labia minora were noted, the largest of these being located in the upper portion of the right labium. This perforation was oval in outline, fully 3 centimeters in length, and its margins were for the most part smooth and nonindurated. At the upper inner aspect of this perforation there was, however, a small ulcerated area approximately 1½ centimeters in its greatest diameter. This bled slightly on manipulation and was definitely indurated. The surrounding tissues and in fact nearly the entire right major labium presented a nonpitting edema which caused the overlying skin to have a nodular appearance due to lymph stasis and contrasting with the smooth glistening distention seen in true edema. Microscopic study of tissue showed what was first described as a cystic adenocarcinoma, but which upon reexamination was found to be a squamous cell carcinoma. The Wassermann was positive.

Case 3. N. W., aged 33, was seen at the writer's office on April 29, 1933. The complaint at that time was of vaginal discharge and pain and burning on urination. The patient had no knowledge of the existence of a small perforation in the right labium minus, and her symptoms were in no way related to it. The perforation measured only one third centimeter in diameter and its margins were smooth throughout. General physical examination was negative as was also the Wassermann. The patient had one child ten years ago, delivered with forceps.

The first case was considered to be of luetic origin in spite of the negative Wassermann reaction since it presented a combination of both active and healed lesions. Other facts which pointed to syphilis as the etiologic factor were the patient's general physical status, the findings revealed by microscopic study of tissue sections and the extremely large number of perforations which practically ruled out traumatism as a cause. In the second case the malignancy was evidently a secondary development since the margins of the perforation were perfectly smooth and intact throughout the greater part of their extent. Everything points to the perforation here being the result of a chronic inflammatory ulceration either luetic or tuberculous in nature, most probably the former. In the third case either traumatism during labor or congenital malformation is to be blamed, although it is impossible to state which of these two causes was responsible.

The treatment of perforation of the labia minora depends not only upon the cause of the perforation but also upon the presence or absence of an active ulcerative process. If the perforation is seen in the completely healed state without ulceration no local treatment is indicated. A Wassermann test, however should be done and the patient examined for tuberculosis in order that a diagnosis of the cause of the perforation may be made and that general systemic treatment may be instituted when indicated by the results of these examinations. Ordinary surgical principles of local cleanliness and rest are to be employed in the presence of an acute traumatic perforation. In the presence of chronic ulceration a specimen of tissue should be taken from the ulcerated area and studied microscopically. If this is negative for malignancy, no special local treatment is necessary when the condition is proved to be of luetic origin. Tuberculous ulcers should be excised and chancroidal ulcers should be cauterized. Local cauterization combined with the intravenous injection of tartar emetic has proved best in the treatment of granuloma inguinale. When cancer is present, complete vulvectomy and removal of the inguinal and femoral lymph glands is to be done if the patient's condition permits, otherwise resort may be had to the use of radiotherapy. One should always examine the patient for the possible coexistence of syphilis and should institute antiluetic treatment when it is present.

937 University Club Building.

PULMONARY TUBERCULOSIS: RECENT TYPES OF OPERATION

Howard Lilienthal, New York (Journal A. M. A., April 14, 1934), states that the cure of tuberculous cavities with their dangers of locally spreading the infection, of septic absorption or of mixed bacterial contamination and of further destruction of pulmonary tissue is the chief object of operative procedure. He feels that the day must come when a direct biologic attack on the bacillus of tuberculosis will result in the control and, perhaps, in the final disappearance of the disease, but at present one can hope only for an arrest of progress with cicatrization with or without calcification or ossification, which in ordinary circumstances prevents the continued advance of the malady. He divides the methods employed in the treatment of the disease into medical, operative and biologic treatment and discusses the four main surgical procedures (extrathoracic procedures, operations on the thoracic wall, transpleural operations not on the lung and attacks on the lung itself), used in pulmonary tuberculosis. He further states that tuberculosis as a disease is not amenable to surgical treatment but that anatomic conditions of a pathologic and threatening nature resulting from the disease may be treated by surgical procedures. The chief object is the obliteration of tuberculous cavities and the conservation of a healthy lung.

CANCER OF THE STOMACH

INDICATIONS FOR SURGERY

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Cancer of the stomach has definitely increased in the last few decades and now comprises about one third of all cancers. Early diagnosis and operation are unusual but are essential to cure. Delayed diagnosis is occasioned by the failure of the patient to appreciate the importance of symptoms, incompleteness of physician's initial interpretation of symptoms with inadequate examination of the patient and the pessimistic attitude of physicians and laymen toward curability of cancer of the stomach. Gatewood's studies of a series of 209 cases showed 5.3 months elapsed before the patient consulted a doctor and 8.3 months elapsed before operation. Early diagnosis is difficult and W. J. Mayo's dictum that there are no pathognomonic signs or symptoms indicating a beginning cancer of the stomach is notably true.

Etiology of cancer of the stomach is still very obscure and discussion occasions debate. The bacterial theory is not substantiated by experimental evidence or clinical observation. No organism, virus or by-product has produced the disease and metastatic growths always reproduce cells of the initial lesion. Fetal rests or localized cells of long standing dwarfism may be factors in malignancy and the familial relationship is often noted. Chronic ulcerative lesions and benign tumors are the essentially recognized causes. Discussion of the effect of chronic inflammation is widespread and variable. In cancers of the lip, tongue, cheek and cervix uteri, irritation and chronic inflammation are most potent factors. Certainly in an organ so susceptible to cancer as the stomach chronic irritation would be important.

Opponents of ulcer relationship insist that excised gastric ulcers may appear malignant because of peripheral thickening and induration and by the microscopical presence of distorted misplaced regenerating alveoli when in reality they are benign. Hauser, Gruber and Aschoff say that necrosis with sloughing and ulceration may occur in the center of a small malignancy due to obstruction and plugging of nutrient vessels and present the appearance of an ulcer with malignancy. Contrary to opinion of opponents to ulcer relationship are microscopical evidence of excised ulcers with unquestioned malignancy, unexcised ulcers which later develop cancer and histories of long standing ulcer symptomatology in patients who have cancer of the stomach. Gastric surgeons almost universally associate the relationship between ulcer and cancer and vary in their opinions from 15 to 30 per cent. Such notable authorities as Mayo, Balfour, Moynihan, Von Eiselsberg, Finsterer, Robson and others concur in this opinion. Wilson and McDowell say cancer rarely develops except upon a previous ulcer lesion.

Benign tumors as polypi, adenomata, papilloma and localized hyperplasia are present in the stomach more frequently than formerly has been thought. Horsley contends carcinoma of the stomach never develops from normal healthy tissue but that there must always be some preexisting lesion that is responsible for its presence. These benign tumors cause no discomfort or symptoms unless their size or location interferes with gastric physiology or necrosis and hemorrhage develop. Miller, Eliasen and Wright found cancer changes in 35 per cent of gastric polypi studied. Malignancy occurs most frequently in ulcer producing regions and in that portion of the stomach where benign tumors are commonly observed. Welch's analysis of 1300 cases states that 70 per cent of cancers are in prepyloric region and the remaining 30 per cent in fundus and cardia.

Lymphatic nodes are abundant; they are pyloric, subpyloric, and along the greater and lesser curvature between the folds of the gastrohepatic and the gastrocolic omenta. Vascularity is abundant and intramural collateral circulation assures adequate blood supply in resections. Extension and metastasis occur by serosal invasion, sloughs with resulting mucosal transplants, and by lymphatic and blood stream invasion. The types of growths generally are colloid, ulcerative, infiltrating and linitis plastica, the latter being difficult to resect, uncertain as to complete removal and difficult to securely anastomose. Large growths are usually well demarcated but may infiltrate the adjacent stomach wall. Glandular involvement is often not malignant and may be inflammatory from an ulcerative lesion. Malignant glands are not however a contraindication to operation.

According to Warwick of the University of Minnesota, the disease remained confined

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to the stomach in 40, or 23 per cent of 176 necropsies on cancer of the stomach, and death in these cases was due to perforation and peritonitis. Many of these cases might have been cured by operation.

Cancer symptomatology is very indefinite and early signs and indications are vague. Gastric analysis is of little assistance and frequently deceptive. Hydrochloric acid is often present even in advanced cases. Marked hemorrhage is uncommon. Cachexia and anemia result from infection and persistent oozing. Previous history of stomach distress is important and a change in the type of symptoms is suggestive of a beginning cancer. No previous stomach trouble in a patient in middle life with persistent stomach distress warrants careful and repeated study followed by exploration if in doubt. Roentgen ray studies by a competent roentgenologist is the most accurate diagnostic measure. Gastric ulcers unimproved by treatment and unchanged by roentgen ray studies should be explored. The size of the tumor mass is no indication of involvement. Apparent fixation may be due to an unrelaxed abdomen, omental adhesions or subgastric adhesive bands binding the mass posteriorly. Moderate fixation to the liver or the pancreas often separates easily and affords mobility of the tumor mass. All prepyloric or body growths should be freed if possible and resected regardless of the size of the tumor or extensiveness of adjacent involvement. Lesions on the greater curvature and body give best prospect of cure and lesions of the antrum are next in favorable prognosis but posterior penetration and extensive glandular involvement are frequent at the antrum. Resection in the presence of liver metastasis is justifiable. Life is prolonged, comfort is reasonably assured and wretching, vomiting and starvation are eliminated. The ultimate end is a painless death resulting from liver involvement.

Lesions high on the lesser curvature are difficult to resect. Closure of the stomach with anterior or posterior gastro-enterostomy is more secure than direct anastomosis to the end of the stomach. Total gastrectomy should only be undertaken when there is free mobility of the stomach and a long mobile approachable esophagus. Gastro-enterostomy is a palliative measure of short duration and advised only in old people in poor condition with obstruction. Exploration is always advisable except in large unremovable metastatic growths, culdesac and rectal infiltration, supraclavicular involvement, lesions of the cardia and in old debilitated patients.

OPERATION STATISTICS

Gatewood reports 58 resections with mortality of 18 per cent; 46.1 per cent of his cases lived three years or more; 39.5 per cent over five years and one patient was alive over twelve years following operation.

Balfour reports 128 patients with cancer of the stomach alive ten years or more after resection.

Finsterer reports 329 resections with 6.1 per cent mortality on uncomplicated cases and 129 resections with pancreas, liver or colon involvement with 41 per cent mortality and 37 per cent of the combined group alive five years after operation. Twenty per cent of his simple, uncomplicated resections were alive ten years after operation.

Finsterer reports 199 resections stating 60 were malignancy upon ulcer and 139 primary malignancy. Longevity after operation was 20.7 per cent of the ulcer group lived five years or more and 35.8 per cent of the primary group lived five years or more. Finsterer takes radical stand and resects in 65 per cent of the cases while most surgeons resect in only 25 per cent. He states "without resection every patient will die and die in pain and misery; therefore, I must resect whenever possible."

Cancer of the stomach requires radical treatment and the responsibility must be assumed by the surgeon. The death rate can be kept within reasonable limits even in the presence of advanced stages or with patients in poor condition. Detailed care as to preoperative preparation, surgical technic and postoperative care is essential. Lavage of the stomach, restoration of the tone of the stomach, elimination of dehydration are imperative. The administration of hydrochloric acid and gastric lavage with a very weak solution diminishes the bacterial content in ulcerative lesions. Horsley strongly advocates this procedure as an added protection against peritonitis. Anesthesia of local infiltration and splanchnic block, with or without ethylene, is valuable in debilitated cases. Spinal may be effective. The technical procedure must be exact and suture without tension is essential. Extreme care must be exercised in closure of duodenal stump. Postoperative administration of fluids often with transfusion is essential. Nothing by mouth for three to five days and lavage if gastric retention is present. Change of position, lung exercises and frequent inhalations of carbon dioxide are protective against lung complications.

1016 Professional Building.

THE EMOTIONS AND THEIR PHYSICAL SYMPTOMS

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The emotional status of a patient has much to do with progress during illness. The family physician is beloved as much for his knowledge of this as he is for all his science of medicine because the things he does or says make the emotional environment and condition favorable for the patient's recovery. The secret of good bedside manner has been jealously guarded from medical students as if it were a proprietary formula. It might be made as much a science as the prescribing of digitalis.

The practitioner has opportunity to observe human nature from the time it is born in the new baby. He may learn what environment will do to a personality, or what personalities put into new environments will do to that environment and to other personalities. There are many variables for evaluation which may seem confusing at first but they add only to the interest inherent in personalities and physical manifestations of emotions.

The medical student in obstetrics knows if the new-born baby does not cry promptly after birth, he is in professional trouble. Later, the baby must be able to make sucking movements and to swallow. The baby did not learn how to perform these highly coordinated movements any more than how to empty the bladder or the bowel.

If one waits a few days until the child has recovered from the mauling incident to being born and then makes a few simple experiments, he may learn just what the primitive emotions really are.

When the child is really hungry, tease it by forcibly withdrawing the nipple from its mouth. One may soon see a demonstration of primitive anger. But allow the baby to indulge its appetite and it will make little signs of contentment and pleasure until it is satisfied. Look about for any evidence of altruistic motives—for anything not directly associated with its own instinctive self-love —and nothing is to be observed for the baby loves its mother only for selfish reasons. Then suppose one claps the hands sharply near the baby's head, or pretends to allow it to fall, fear is shown. The triad of primitive emotions is complete: Love (of self), anger and fear.

As time goes on under reasonably normal family environment, one begins to see various gradations of the primitive emotions as well as a synthesis of two or three of them at the same time. The love of self begins to expand until it takes in other objects such as the mother—but always for selfish survival or pleasure reasons. The child is then able to experience such emotions as jealousy, resentment and disappointment, all "synthetic" in character.

At first glance this combination of emotions would seem incapable of analysis. But consider jealousy, for example, in its principles and it will be discovered that there must always be a love object, an interfering object and the child itself. In other words, the child loves or feels possessed of something but fears that something will be removed. It is angered at the person who is interfering. This is jealousy and has elements of all three of the primitive emotions.

It appears to be a fact that people are born into the world with some imbalance in their triads of primitive emotions, for even infants have personalities which may be predisposed to a preponderance of the selfish, the fear or the anger elements. Parents and home may have powerful influences either in correcting this imbalance or in actually causing such imbalances to become more manifest which are frequently attributed to heredity. The child of a nervous worrisome mother and a stern father may be expected to be different in personality from the child of two calm and reasonable parents. If a child grows to maturity with fear as a dominant emotion, he may be expected to have a different personality than a child having anger or altruistic love in its various aspects as a dominant emotion.

The layman knows well the sensations and appearances of acute anger, fear and self-love. Physicians know these emotions cause marked changes in the functions of the visceral organs when the disturbance is strong. But it is not well recognized what these emotions do to the functions when the emotions are milder in degree and prolonged, or when the patient is suffering from the effects of a variety of the synthetic or combination emotions.

INFERIORITY AND OVER-CONSCIENTIOUSNESS

REPORT OF CASE

Miss K., nurse, aged 30, was first examined four years ago because of a dendritic ulcer of the left cornea. Blood pressure 100/70, pulse 70, no free

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From the Department of Clinical Neuro-Psychiatry, Washington University School of Medicine, St. Louis.

hydrochloric acid found in the stomach on three different occasions. All other physical and laboratory findings were negative. She was given a diet list to follow, cod liver oil, hydrochloric acid and sodium salicylate. Her improvement was slow but eventually complete. During the time of greatest discomfort she had a spread of pain from the left orbit down the left side of the face, neck and into the left arm on one or two occasions.

One year later there was a recurrence of the eye trouble with the same physical findings. This time a better emotional and social history was elicited. For reasons outside her control she had been rendered unattractive in appearance. She was the eldest of six children and had early taken it upon herself to assist her parents in rearing and educating her younger brothers and sisters. Many times she had been distressed by the ingratitude they showed. By great industry and self-denial she had managed to accumulate several thousands of dollars before the first appearance of the dendritic ulcers. She lost this money while personally transferring it in cash from one depository to another. This made her feel very insecure as to her own future.

Just preceding her recurrent ulcer a younger brother had a serious accident during an escapade. She had him removed to a hospital and placed with doctors of her own choice. Then for months she nursed other patients by day and her brother by night. Even so it had been necessary for her to go rather deeply into debt to care for the brother. This time there was a greater tendency for the pain to spread along sympathetic pathways and she suffered so keenly she begged her oculist to enucleate her eye.

During this second illness an effort was made to convince her that her attitude and conception of duty to her family were extreme and that she was really doing them as much harm as good. She could learn nothing from the fact that the brother who was already through college would not apply himself enough to be completely self-supporting, or that none of the others had the foresight to carry sufficient insurance for such occasions in which the youngest brother had found himself. She had an opportunity to travel in Europe with a patient and returned considerably improved.

A number of months later she began having pain in the cardiac region, insomnia and headache. She took digitalis without her physician's advice and soon came to him with complaints of irregular heart beat and "angina pectoris." In addition to the pain in the left arm there was a heavy and rather painful discomfort in the left leg. After careful examination she was told her pain was of functional origin. She was very angry at being accused of "imagining her pain." Curiously, the pain disappeared almost instantaneously.

The patient again appeared about a year ago with the pain in the cardiac region radiating into the left arm and down the left side. Again the idea was firmly fixed in her mind that she had angina pectoris. During this series of consultations she was made to tell some of the story why her second brother had committed suicide while on a visit home from college. This had happened some weeks before the previous attack of pseudo-angina and she had rationalized it as her own fault for she should not have insisted that he must go through college. Otherwise, she held herself blameless of anything and boasted conceitedly of her lack of conceit. Again she was told her pain was of functional origin.

She insisted upon having her diagnosis. She was horrified and angered to learn it was considered as an anxiety neurosis. Then she was given the apparently callous advice to go and do anything she could which might aggravate her discomfort.

Two days later she called by telephone and stated in an aggrieved voice she had played tennis two hours and swam for another hour. There had been no pain.

This patient's personality may be summarized as one with a strong self-love masquerading under the veneer of altruism and "duty." When conflicts and physical pain complicated the picture, fear aggravated the pain and caused it to lower the threshold. Strong anger was the primitive emotion which could quickly and effectively divert her emotional stream from the painful pathways. This was done on two occasions but the patient remains intractable to analysis or to suggestion, still wishing to be one of the doctors on the case.

DESPAIR

REPORT OF CASE

Mrs. C., aged 48, had not been feeling well for more than a year. The first acquaintance with her was when she brought her sixteen year old daughter for examination and "tonic." The girl was really superior but suffering from inferiority and was doing fairly well in a special school. Mrs. C. was able to discuss her daughter's psychic problems with more than average intelligence and during these discussions it was learned that her husband, about twenty years older than she, had been suffering for years from paranoid delusions with a religious compensation.

About six months later she was seen at home because of palpitation of the heart, headache, dizziness, weakness, lethargy and fatigue. During such attacks her blood pressure was normal and the pulse rate rather slow. Her anxiety was then turned toward herself and she went the rounds of specialists and dentists searching for the cause of her ill-being.

She appeared fatigued and listless. She had been suffering from a curious inability to concentrate, a rather painful discomfort in the temples and top of the head (a tightness rather than a pain), muscle aches, a tendency to gain weight, increased tendency to sleep, nervous tension, short periods of palpitation and gassiness of the bowels with increasing tendency toward constipation. One tooth had been found to have an apical abscess and had been removed. It was then found her blood pressure was 100/70, pulse 68, basal metabolic rate minus 15 per cent.

More than calculated doses of thyroid were required to raise the metabolism to normal and served only to increase her nervous tension. She began to have horrible anxiety dreams. It was mentioned such dreams might indicate either a toxic condition or a sexual conflict. That served to release her story. Twelve years previously, after the birth of her last child, she and her hus-

band had agreed to sexual abstinence as a birth control measure. Gradually her tension had increased and at age 45 there were signs of menopause. A year later the menses had become irregular. Then came heightened libido which she believed was abnormal and possibly sinful; either that, or it might possibly be due to an impending insanity. Since there was an occasional menstrual period she was afraid to resume sexual relations with her husband, if that were possible.

The situation was discussed from all viewpoints and she was reassured in every way possible, but without avail. Then she was ordered to take a marital vacation at some place sufficiently distant so no relatives or friends would visit her. Fortunately, she followed the advice and spent four weeks in Arizona during which she reoriented herself among her conflicts and returned to the same situation and has been coping with it successfully and as happily as could be imagined for the circumstances.

This patient's symptoms were all indicative of a person in a disagreeable situation; resentment against conscientious scruples and despair. Had she more active resentment and some hope of remedy the blood pressure, pulse and metabolic rate would have all been increased if changed at all. According to social standards this woman had an exemplary personality—self-love well covered with altruism—but she resented her situation until fear of symptoms of her own tension caused more fear. No human being can long withstand the cumulative effects of conflicts among the whole triad of primitive emotions. As with the preceding patient, this woman could withstand a conflict between the anger and the selfish groups but when the additional effects of fear became manifest the burden became too great.

FRUSTRATION

REPORT OF CASE

Mr. K., insurance salesman, aged 38, complained of burning and sourness of stomach after meals. History was very suggestive of duodenal ulcer and physical examination revealed tenderness in the right upper quadrant of the abdomen. There was a band of skin hyperalgesia corresponding to the right eighth thoracic segment. Just a few days before roentgen ray examination had been made and he had been advised to have a cholecystectomy at once. No ulcer had been found.

The tensity of his manner led to an investigation of his emotional history. He was not entirely cooperative but facts were elicited which seemed pertinent.

In 1929 he was speculating in the stock market and making profits equal to his income from his work. Affairs with his wife were coming to the point of disruption. About September, when the stock market wavered, he began having a burning sensation in the epigastrium about two hours after meals. His divorce was consumated but his symptoms persisted until some time in February, 1930. He was trying to recover his market losses on the rising market. About the latter part of June or in July when the market slumped again his symptoms returned. Then he got out of the market entirely and his symptoms gradually subsided as he gave more of his attention to his work. There was no noteworthy recurrence until February, 1933, when banks were failing and nobody was buying insurance. After the bank holiday his symptoms had persisted until this partial analysis was made in May. After explanations had been made regarding the avoidance of condiments, pastries and acids, and he was told his emotional condition might be entirely at fault, a very mild sedative was given with relief of symptoms in less than a week.

During August and in all the encephalitis epidemic publicity he may have had an extremely mild attack, manifested by headache, slight stiffness of the neck, general malaise and muscular aches. There was considerable newspaper talk about the fear of encephalitic residuals. In early September the patient was incapacitated with headaches, nausea, vomiting and epigastric pain with definite evidence of gallbladder tension. All symptoms subsided after administration of magnesia and bromide. He soon learned to recognize the effects of resentment and fear and to disregard the minor annoyances of life.

Disregarding the possibility of organic disturbances of function, this man's personality undoubtedly had more than anything else to do with his symptoms. Driving ambition, frustration and insecurity represent the major emotional factors of his ego and its downfall. Just as with the other patients mentioned, his visceral organs had little functional disturbance so long as there was little conflict between his self-love (self-respect) and his anger group of emotions. When external factors worked to the disadvantage of his self-respect and made him feel insecure—a fear emotion—normal sphincter reflexes were heightened until physical symptoms were produced. These disagreeable conditional reflexes always persisted until his feeling of security was somewhat restored.

RESENTMENT AND ALLERGY

REPORT OF CASE

Miss A., teacher, aged 28, has been suffering from severe and persistent headaches, urticaria and abdominal pain. She was seen first during hysterical delirium in which she cried out for the physician and wished to go to the hospital. There was definite tenderness in the right lower quadrant of the abdomen which was distended moderately. Later indications were elicited indicating her appendectomy had left peritoneal adhesions and that there was a great delay in her colonic motility. She was literally forced by her family to submit to the best sort of analysis that could be made.

Even with this handicap the patient was restored sufficiently so that she was able to finish eight or nine months of the school year despite headaches, bladder complaints, urticaria and obstinate constipation. During this time it was learned that she wished to become a nun and there were certain ill defined things she disliked about teach-

ing and her social and family environment. Because of her inability to adapt herself and her resistance to suggestion, it was insisted upon that she be sent away from the city and live among strangers during the summer. And, with life rather harder, the patient regained emotional equilibrium sufficient to enable her to be free of allergic manifestations, headaches and bowel disturbances, for three months.

The first Thursday at teaching brought on her headache again. That was the day of all school days she resented because she must take her turn at patrolling the halls to preserve order. For a month she was able to cooperate with analytic procedures and virtually was free of nose block and headache. She admitted her headaches started about the time she failed to receive her promotion two years ago and resentment, disappointment, depression and unhappiness made her nose block and caused headaches. These are all anger emotions.

This patient had been trained to believe it a duty to submit to constituted authority wherever found, but she had not been taught how to rationalize her resentment or to recognize vague sex fears as such and to eliminate them as social impediments. Regardless of her true excellence as a teacher, that was no compensation for being told what to do regarding all parts of her life. Injured self-respect, biologic frustration, and suppressed resentment eventually found outlets by pathways common to allergy, bad enough of itself.

Allergy and further frustration about her religious ambitions have gradually increased her symptoms until she is almost as badly off as a year ago. There is little hope for her under present conditions, but in almost any other environment there is great possibility of her being entirely free of neurotic and allergic symptoms.

The entire nervous system may be likened to a storage battery and the various organ systems as motors connected with it. Should there be a surcharge condition of the battery one would expect the likelihood of "short circuits" wherever insultation might be defective, or an overloading of an outlet already in use. Thus, if there should be pain from any cause, a heightened reflex activity or a disorder of function, such a thing as emotional surcharge will aggravate that condition and eventually lower the threshold so that the disagreeable symptoms will continue to recur long after the original organic cause has disappeared. The patient is helpless in getting out of such a predicament unless by some happy change in environment, for he invariably tries to do the wrong thing for his own relief because he is unable to recognize the real nature of the symptoms. Indeed, he comes to fear the symptoms caused by his own anger or fear which increases the complexity of the situation for both the patient and the physician.

SUMMARY

The individual is born with a triad of emotions: Fear, anger and self-love. As he develops to maturity the self-love becomes self-respect and acquires an altruistic increment which may be termed love for others. The element of self-respect must be dominant or mental and physical ill health will occur, particularly if the fear and anger elements are both heightened in intensity. The individual usually tolerates the heightening of anger better than fear which is commonly the factor to tip the balance toward ill health.

Physicians who understand this emotional mechanism as a cause of physical symptoms may often avert, alleviate or even relieve them, saving the patient much anguish which cannot be completely eradicated by any other procedure in medicine, except by analysis.

THE USE AND ABUSE OF DIGITALIS

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Heart disease cannot be treated by drugs alone. The control or adjustment of physical, mental and recreational activities as well as social, economic, educational and other factors in the cardiac patient's life is often of equal or more importance than the administration of drugs. Nor is digitalis the only effective drug in cardiac therapy. It still is and probably will continue to be a very useful remedy in the treatment of some phases of certain kinds of heart disease, but not necessarily in all types and not in all stages of any one type of heart disease.

In the discussion of the clinical use of any drug the fundamental action is of prime consideration. Digitalis affects the heart chiefly in two ways: First, by slowing the speed of conduction through the bundle of His; and, second, by improving muscle tone and producing stronger and more complete muscular contraction. A third effect is its influence upon the pacemaking functions of various parts of the heart. These fundamental actions of digitalis should guide us in its clinical uses. In general, one or the other or all of these actions are the basis for digitalis therapy in auricular fibrillation, auricular flutter, congestive heart failure and paroxysmal tachycardia; the essential indications

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for the clinical uses of digitalis. The first three of these, auricular fibrillation, auricular flutter and congestive heart failure are of major importance; the fourth, paroxysmal tachycardia, of minor importance.

Auricular fibrillation may be associated with any form of organic heart disease but it is most commonly seen in conjunction with mitral stenosis, chronic vascular disease and the thyrotoxic heart. It is occasionally seen in otherwise normal hearts following very violent exertion, great emotional stress, or in intoxications from alcohol and gases, or after surgical operations. It occurs most often in people of an emotional or tense psychic character. It may be either paroxysmal or permanent in character.

In this functional disturbance of the heart beat the conduction tissues between the auricle and ventricle are showered with impulses developed in the auricle at a rate of about 450 to 600 per minute. It is not possible for the auriculoventricular node to transmit more than about 160 to 190 of these impulses to the ventricle per minute. The pulse rate is often 60 to 100 beats slower than the heart rate for many of the ventricular contractions are weak and ineffectual in circulating the blood. This difference between heart rate and pulse rate or the so-called "pulse deficit" is a rough measure of the reduced efficiency of the heart and circulation and the useless expenditure of energy by the heart muscle in auricular fibrillation. Any therapy that will reduce the number of these ineffective heart beats would be expected to improve the efficiency of the heart and the circulation. Digitalis in adequate amounts will do this by impairing the conductivity of the A-V node, often reducing the ventricular rate by 60 to 100 or more beats per minute. With the reduction in the heart rate to approximately normal (70 to 90), each heart beat becomes stronger and more effective in circulating blood to the peripheral vessels. The pulse deficit is decreased or may even disappear. And the pulse rate will often actually increase. By a simple process of multiplication it is apparent that the heart is spared 70,000 to 100,000 weak or totally ineffective ventricular contractions per day. Thus adequate digitalis therapy in auricular fibrillation with a fast heart rate improves the efficiency of the heart and circulation and by conserving the heart muscle may delay for long periods of time, often for many years, the appearance of congestive heart failure.

In those cases of auricular fibrillation in which congestive heart failure has already made its appearance digitalis is even more urgently needed for the heart must be conserved to its utmost. It is here that we make use not only of that action of digitalis which slows the conduction of impulses from the auricle to the ventricle but also its action of improving muscular contraction.

The early writers on the use of digitalis for the treatment of edema commented on the fact that the digitalis leaves were most effective in cases with irregular pulses. It is not at all unlikely that the irregular pulse to which they referred is what we know today as auricular fibrillation. So today as in the past the most spectacular improvement from the use of digitalis in auricular fibrillation occurs usually in those cases with edema and the other signs of congestive heart failure.

Sometimes an organically impaired auriculoventricular conduction system will be found coexisting with auricular fibrillation. The ventricular rate will then be less rapid and the amount of digitalis necessary to control the heart (ventricular) rate will be correspondingly less. In the absence of congestive heart failure, if the heart is sufficiently slow (70 to 90), digitalis therapy may not be necessary. If, however, congestive heart failure is present with an auricular fibrillation with a slow ventricular rate it is often difficult to decide whether digitalis will be beneficial or harmful and can sometimes only be definitely determined by a therapeutic trial. The question involved is whether the production of an abnormally slow rate will be more detrimental than the increased effectiveness of muscular contraction.

The second indication for the use of digitalis is in auricular flutter. The mechanism of auricular flutter is closely akin to that of auricular fibrillation. The chief difference is that the impulses are developed rhythmically in the auricle and at a much slower rate, usually between 240 and 320 per minute. As in auricular fibrillation the A-V bundle cannot conduct all the impulses to the ventricle. The usual result is a two to one or a three to one ratio of auricular to ventricular activity. It is, therefore, evident that ventricular rates in auricular flutter can be rapid. By giving digitalis to decrease the conductivity of the A-V bundle it is possible to slow the ventricular rate as in auricular fibrillation and save the ventricular muscle an unnecessary amount of work. In other cases of auricular flutter, digitalis will convert the flutter into auricular fibrillation. Then, if the digitalis is discontinued for a short time, the auricular fibrillation may be replaced by a normal heart rhythm. If, however, the fibrillation

persists it should be treated as any other case of auricular fibrillation.

The coexistence of congestive heart failure with auricular flutter enhances the desirability of digitalis therapy. For here again, as in the case of auricular fibrillation, we make use not only of that action of digitalis which delays the conduction of impulses from the auricle to the ventricle but also its action of improving muscular contraction.

The third indication for the use of digitalis is congestive heart failure irrespective of the etiology or the pathological changes present. It is true that all patients with edema, ascites and pulmonary congestion do not respond to digitalis therapy. This failure to respond is an indication of a lack of reserve in the heart muscle and warrants a grave prognosis. When the patient does not improve after receiving a reasonable amount of the drug it is usually wise to discontinue its use and try some other form of treatment rather than risk intoxication from overdosage. Aortic valve disease is said to be a contraindication to digitalis. The heart muscle in these cases as in other types of organic heart may not respond to digitalis but sometimes it does. The mere presence of aortic valve lesions is not a sufficient reason for withholding digitalis.

In mitral stenosis with a high degree of stenosis, digitalis often seems to increase the patient's discomfort. Digitalis should, however, be tried and discontinued only when the clinical results are not satisfactory.

Complete heart block in congestive heart failure need cause no hesitancy in the use of digitalis for it is impossible to increase the block and the improvement in the function of the ventricular muscle from its use may be very helpful. On the other hand, if a partial block is present digitalis in even moderate amounts may produce a complete block. This may add more burden to the already handicapped heart. So digitalis should be used with caution in congestive heart failure associated with partial heart block.

Cardiac asthma does not exhibit all the features of congestive heart failure and yet it is closely related and should be considered as a form of the latter. Complete digitalization and the maintenance of digitalization often reduces the number and severity of the attacks even though it does not cause their cessation.

A fourth indication for digitalis which has been mentioned is paroxysmal tachycardia. The majority of cases of this condition do not cause the patient a great deal of inconvenience. Its duration is usually short and is often better controlled by other means than the use of digitalis. Occasionally after all other means have failed, digitalis has been reported as having caused improvement.

If paroxysmal tachycardia superimposes itself upon an already damaged myocardium, digitalization is advisable in controlling or preventing congestive heart failure.

Digitalis may be given as a therapeutic test in cases where there is inconclusive evidence of congestive heart failure. This group of cases consists chiefly of elderly people who show dyspnea on exertion. This may be either the onset of congestive heart failure or it may be due to other causes. In either case, when in doubt, the administration of digitalis is justified.

In any discussion of the uses and abuses of digitalis, consideration must be given to methods of administering the drug. One must have a knowledge not only of the actions of and the indications for the use of the drug, but also some idea of the amount necessary to produce these effects and the methods of administration. The term digitalization means the saturation of the body sufficiently to produce the desired therapeutic results. Experience has shown that individuals vary rather widely in their response to digitalis. Some will have to take much less than the average amount to avoid toxic effects; others will require much more to secure the desired therapeutic result. For the average patient of average size and weight, 15 to 20 c.c. of the tincture or an equivalent amount of some other form of digitalis will be required to produce digitalization in a period of several days. Since the maximum effect from the dose of digitalis is obtained in from six to twelve hours, it is not advisable to give digitalis more frequently than every six hours. If the need for digitalis is urgent it may be given in 4 to 5 c.c. doses at intervals of six hours until the desired therapeutic result is evident or until 15 or 20 c.c. have been given. If the condition is not urgent, it may be given more slowly in doses of 4 to 5 c.c. daily over a period of three to four days. In older people the amount of the drug necessary to produce digitalization is usually somewhat less than in younger adults. Any statement on dosage can only be interpreted as a guide upon which to start digitalization of the individual patient. Its continuation and the amounts given at each dose must be judged by the response of the particular patient. Patients while being digitalized should be seen daily or oftener so that early

toxic symptoms may be noted and the drug either discontinued or the dose reduced.

The drug is destroyed or excreted by the body at the rate of about 15 to 30 minims (not drops) per twenty-four hours. If no more digitalis is given after the patient has been digitalized, the body will be free from its effects in from ten to fourteen days, and the unpleasant symptoms for which the drug was originally given will begin to reappear. To avoid this alternate improvement and retrogression, small daily amounts of digitalis must be given to maintain the saturation of the body at the therapeutic level. The amount of the maintenance dosage is dependent upon the rate of destruction and excretion of the drug in the particular individual patient; some require more and some less than the average. This can usually be determined by the process of clinical trial and observation. If the estimated average dosage does not maintain the digitalization it should be increased and *vice versa,* if signs of over digitalization become apparent. Many patients become very adept in gauging the amount of digitalis they need and their opinion should always be sought in determining the maintenance dosage. It will frequently be found very valuable.

Patients will often come under a physician's observation who have been taking digitalis in amounts inadequate to produce or maintain digitalization. Such patients are partially digitalized and will need a smaller amount of the drug to become digitalized than the patient who is receiving digitalis for the first time. If a patient has been taking digitalis within the previous two weeks the amount needed to complete the digitalization must be estimated in accordance with the size of the previous dosage and the period of time over which it has been taken. If this is not kept in mind the patient may be over digitalized and toxic effects are almost sure to follow.

The methods of administering digitalis in common use are by mouth, intravenously and intramuscularly. The most satisfactory method is by mouth. There are occasionally cases in which congestive heart failure, auricular fibrillation or flutter are accompanied by vomiting due to the cardiovascular disturbances and not due to digitalis poisoning. It may then be necessary to give digitalis intravenously or intramuscularly. Usually after one or two doses the vomiting will stop and digitalization can be continued by mouth. There are several good special preparations of digitalis on the market for intramuscular and intravenous use.

Small multiple daily maintenance doses of digitalis are no more advantageous than a larger single daily dose. The larger dose is usually more accurately measured and causes the patient less inconvenience. The smaller doses are usually measured by drops. An ordinary medicine dropper is very inaccurate for it will drop from two to four drops per minim. A set of measuring spoons are found in most kitchens today. By their use, digitalis can be fairly accurately measured into 1, 2, 3 or 4 c.c. doses.

One of the abuses of digitalis is its injudicious use due to a lack of appreciation of its fundamental actions, of the methods of administration and of the clinical indication for the use of the drug. Some of its abuses—inadequate dosage, overdosage, too infrequent observation of the patient during digitalization—have been implied in this discussion. There are a few more that should be mentioned briefly.

Some of the changes in cardiac mechanism due to overdosage of digitalis are: Auricular fibrillation, heart block, coupling, auriculoventricular dissociation, auricular standstill and ventricular fibrillation. The appearance of any of these during digitalization indicates the drug should be discontinued. A change in heart rhythm, such as an intermittent pulse, a marked slowing of the pulse rate or a progressive increase in the pulse rate, are indications that some of the above conditions may be developing. As a rule they do not appear before the usual classical toxic signs of anorexia, nausea, vomiting and visual disturbances but in some cases they may. If it is possible to secure electrocardiographic tracings these may be helpful in avoiding over digitalization.

An organically damaged heart may perform its work successfully for many, many years and the patient die of other causes than heart failure. Such hearts are said to be compensated, while those with congestive heart failure are said to be decompensated. In organic heart disease well compensated digitalis is not necessary. The treatment of such a heart by other methods as suggested in the first paragraph of this paper is often much more successful in continuing good functional capacity of the heart. The use of digitalis, therefore, in compensated cardiac cases may be considered an injudicious use of digitalis.

The prescribing of digitalis to slow the pulse rate, except in auricular fibrillation or flutter, is another abuse of digitalis. There are many conditions and diseases in medicine which give rise to rapid pulse rate not neces-

sarily injurious to the heart nor indicative of heart disease. Digitalis given to such a normal heart seldom if ever produces any slowing in the pulse rate until toxic effects have been produced. Therefore it does not accomplish the purpose for which it was intended in the first place; in the second place it may be harmful in developing toxic rhythms, and in the third place it is often a waste of good digitalis.

The use of digitalis as a routine preoperative and postoperative treatment without regard for either a history or evidence of heart disease should be condemned. This is not to be construed, however, to mean that a case of definitely known heart disease should be denied digitalis at the time of an operation. It should be given both preoperatively and postoperatively as indicated by the functional capacity of the heart at such times.

Digitalis is frequently given during the course of various infectious diseases to protect the heart. There is no proof that such digitalis therapy protects the heart against endocardial, myocardial or pericardial changes. If, however, during the course of an infectious disease the heart gives evidence of not maintaining an adequate circulation, digitalis should be given according to the clinical indications for its use.

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THE MANAGEMENT OF CARDIAC EDEMA

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Cardiac edema may be divided into three major divisions: (1) Acute pulmonary edema; (2) hydrothorax, and (3) dependent edema. Two or three of these types may exist at the same time. The relation between the type of heart lesion and the type of edema is not fully understood. Some myocardial degenerations will produce a hydrothorax and practically no edema of the legs, while other degenerations will produce much dependent edema with ascites and no hydrothorax. Acute pulmonary edema may be superimposed on either type, usually on the hydrothorax; or it may come as a thunder storm with few warning signals.

ACUTE PULMONARY EDEMA

Fortunately this is a rare disease. When it does develop the most drastic and heroic efforts must be exerted to save life, and even then the mortality rate approaches a high level.

A hypodermic injection of ¼ grain of morphine sulphate must be given at once and repeated as needed. A venesection of from 500 to 1000 c.c. of blood must be performed immediately to decrease the pulmonary circulation. This is probably the most essential step in the emergency. An oxygen tent should be procured as soon as possible and used until the dyspnea subsides. An intramuscular injection of some sterile digitalis preparation should be given in 2 c.c. doses every two to four hours until the heart becomes digitalized. If the heart has been under the influence of digitalis it is safe to give at least 2 c.c. of the preparation at this time and to proceed with more caution to the point of maximum effectiveness of the drug.

There is often a hydrothorax complicating the acute pulmonary edema. This must be dealt with by the removal of from 500 to 800 c.c. of the fluid from the right pleural cavity, as will be described later. Even under the most energetic treatment these cases become rapidly worse and death overtakes the situation.

HYDROTHORAX

Although this is a much less dramatic condition than the acute pulmonary edema, the resulting dyspnea from lung pressure taxes the ability of the physician. E. Barie in 1902 stated that hydrothorax occurs in 10 per cent of all heart failures. This figure would seem a little too high. Hamilton[6] is emphatic in his insistence upon the removal of the collected fluid in the pleural cavity as soon as it can be detected. He has done this by simple siphonage for years without causing disturbing symptoms in any of his cases.

The pleural cavity has not the power of absorption which the abdominal cavity has. Hydrothorax, in most instances, must be removed by thoracentesis. The right side is by far the greater offender. More fluid collects on the right than on the left side. No reasonable explanation is given for this happening.

The thoracentesis is best performed by using a four-inch 18 gauge needle. A site in the subscapular area in the ninth interspace is excellent. A small wheal of procaine will add greatly to the comfort of the patient. Under the best of sterile precautions the needle is introduced into the pleural cavity. From 500 to 800 c.c. of fluid is slowly withdrawn by gravity. Should coughing occur, the sterile finger must be placed over the needle lumen until it subsides. It may be necessary to withdraw the needle slightly if the coughing persists for it may be in contact with the lung. In the event of air rush-

ing into the needle lumen a finger must be placed over the opening and the needle withdrawn. The thoracentesis may be repeated daily and the sides alternated. Not more than 800 c.c. should be removed at any one sitting for fear of producing an acute pulmonary edema.

Digitalization of the heart is of utmost importance. It must be produced in all types of edema. For the first day, if the symptoms so demand, the intramuscular route of injectable digitalis may be used. Thereafter a biologically assayed product may be given by mouth. A fresh tincture direct from the manufacturer is good but in lieu of this a preparation such as kapseals digifortis is excellent. Six or eight such capsules per day may safely be given for the first week. The first day twelve or fourteen such capsules may be given if there has been no previous digitalis.

Should the patient be unable to take the digitalis by mouth because of nausea or vomiting it may be given by rectum. In this method of administration the fresh tincture is excellent. A 10 per cent solution of the tincture with tap water is satisfactory. This is given slowly by rectal drip. Not more than 60 c.c. of the dilute solution should be given at one time. The absorption by rectum is the same as by mouth so the same estimate of dosage may be used. For effective digitalization with the fresh tincture from 10 to 20 c.c. of the drug will have to be given the first day. Larger patients get still larger doses. The second day 5 to 10 c.c. will be enough; and on the following days 3 to 5 c.c. will carry the patient. The drug may always be stopped for a day or two should toxic symptoms appear. Digitalis should always be pushed until the first toxic symptoms appear in order to get maximum results.

There are other members of the digitalis family; namely, strophanthin, ouabain and squill, which may find a rare use when digitalis cannot be tolerated.

DEPENDENT EDEMA

This is the most common type and occurs in practically every decompensated heart. In the treatment of this type digitalis is of prime importance and must be given as outlined above. This alone may be enough in the mild cases.

Since the advent of the mercurial derivatives, novarsural and salyrgan, the treatment of edema has become much easier. These substances are actual life-savers to the water-logged patient. Some physicians prefer one drug some the other. The action of both is practically the same.

One or 2 c.c. of either drug is to be injected intravenously or intramuscularly three times the first week and twice the second. The action seems to be quite the same whichever route is chosen for its administration. It cannot be given subcutaneously because of a tendency to slough formation. This is also one objection to the intravenous method. The intramuscular injections are not without some pain. They are given deep into the gluteal muscles.

Ammonium chloride may be given with either drug in doses of 4 to 8 grams daily. This will increase the efficiency slightly. Due to its nauseating effect this salt is not given by many workers.

After the injection of either novarsurol or salyrgan the amount of urine excreted is enormous. One patient with a nocturia of twice nightly was given 2 c.c. of novarsurol and thereupon began to urinate large amounts of urine seven times a night for over a week. Bernheim in "Der Therapie der Gegenwart" states that salyrgan has been used in 1000 injections without observing the slightest toxic effects. One patient had been treated repeatedly for five months without irritative symptoms.

The use of the mercurial diuretics is not without danger, however. It is generally conceded that a large amount of kidney damage is a contraindication to the use of these agents. In cases complicated by chronic interstitial nephritis, a suppression of urine may occur followed by stupor and then a typical uremia. Should suppression or stupor appear, the drug should be discontinued at once and water given in large amounts to dilute the nitrogenous products in the circulation.

Limitation of salt and fluid intake is of value in all edematous cases. It is best to place the patient on a light diet of bread, toast, cereals, cake, potatoes, green vegetables, eggs, cheese, jello and fruit; prohibit the use of coffee, tea, milk, soup, broth, cocoa and beverages. Not more than 1000 to 1500 c.c. of water per day should be permitted. A little with meals will be necessary. No salt is permitted at any time.

Catharsis will be needed in most cases. A minimum amount of laxative to produce one or two movements a day is required. One to four teaspoons of aromatic cascara may be enough. Tablespoon doses of magnesium sulphate may be required and if necessary a

hydrogogue such as colocynth extract, in one half grain doses. There are several good colocynth compound pills on the market. Due to the distress of excessive colonic distention pressing against the diaphragm an enema may have to be used if the cathartics fail.

Bandaging the lower limbs with elastic bandages such as the Ace three-inch cotton bandage is helpful to a minor degree. This bandage must be reapplied often, starting at the toes and wrapping until the knee is reached. Frequent laundering of these bandages is necessary. Should an ulcerated condition of the leg develop it had better be treated with an antiseptic ointment and sterile gauze before the pressure bandages are used. These ulcers heal very slowly. While at rest the patient should have both legs well elevated. Hot air baking treatments may be of some help in reducing the edema but care must be taken not to burn the patient for the burns are worse than the edema.

These patients, while at home, sleep best in chairs and are especially partial to the old fashioned Morris chair with its adjustable back. A hospital bed or an adjustable backrest is most urgently needed in practically every case. Absolute bed rest is necessary for the first few days of the treatment. It would seem best, however, not to keep elderly patients with damaged hearts quietly in bed for any length of time. Taking the ordinary demands of life from a degenerated myocardium and peripheral circulation encourages still further degeneration and atrophy. It would seem wiser to allow these patients to be up and in a wheel chair at least while undergoing treatment, if their conditions will permit.

One to 3 grains of phenobarbital is given each night to promote sleep. Even with this hypnotic, sleep is not often possible. Morphine is given to patients in extreme conditions.

Xanthine derivatives such as theobromin, theobromin sodium salicylate (diuretin), theocalcin, theophyllin (theocin), and theophyllin endiamine (metaphyllin) have not been discussed here for two reasons. The first is that they are at best mild diuretics and the second is that they must be given in doses which approach nausea to do the maximum of good. In following the course of digitalis to determine symptoms of saturation, nausea is one of the first events to mark this state. The use of the xanthine derivatives confuses the picture. According to Carr[3] too much reliance should not be placed on this group of drugs. He uses digitalis to the point of nausea.

Herrmann, Schwab, Stone and Marr[4] working together, however, are enthusiastic in the use of the combination of one of the xanthines (theophyllin) and salyrgan, stating such a combination to be far superior to the use of either drug alone.

Ascites is usually of little importance in a true cardiac case. Should paracentesis be done, the amount of fluid obtained will be disappointing. If secondary liver changes are present the ascites may be sufficient to cause a tense abdominal wall. In such a case, paracentesis is necessary. The use of novarsurol and salyrgan has made paracentesis a rare event, for the ascites is the uppermost portion of the dependent edema and the first to disappear under the mercurial treatment.

The use of multiple leg incisions or punctures, such as Southey's tubes, for the reduction of edema should be very rare in the management of cardiac edema. Most writers are discouraged by their attempts at this time-honored procedure. The incidence of infection is high. The wounds drain, seemingly, forever. White and Bland,[7] in their most excellent article on Southey's tubes, recommend this procedure for a type of patient who has been the victim of repeated attacks of decompensation and who no longer responds to digitalis, diuretics and fluid restriction.

SUMMARY

1. Acute pulmonary edema is treated best with morphine, venesection, oxygen and digitalis.

2. Hydrothorax is treated best with thoracentesis and digitalis.

3. Dependent edema is treated best with mercurial diuretics (novarsurol and salyrgan), fluid intake reduction and digitalis.

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JUNE, 1934

EDITORIALS

WILLIAM HENRY WELCH, M.D.

Dr. William Henry Welch, dean of American medicine, died April 30, 1934, at the age of 84 in the Brady Urological Institute of the Johns Hopkins Hospital in the foundation of which this internationally known educator played a major part.

He was born in Connecticut in 1850. He received his Bachelor of Arts degree at Yale University and graduated in medicine at the College of Physicians and Surgeons, Columbia University, New York. He studied extensively abroad under Koch, Pasteur, Lister, Virchow, Cohnheim, Ehrlich and other great European teachers. When the Johns Hopkins University was being organized Dr. Daniel Gilman, the first president of Johns Hopkins University, was searching Europe for a master of medicine to act as a guide for the Hopkins medical faculty. He consulted Cohnheim who advised him that a young American, Welch, offered more promise than any European of whom he had knowledge. Welch at this time had returned to New York and after refusing a lectureship at Columbia University because it offered no laboratory facilities was given the chair of pathological anatomy at Bellevue Hospital Medical School, New York. In 1884 the Johns Hopkins trustees invited him to Baltimore as the Baxley professor of pathology. It was here that he outlined a course which was to revolutionize medical education in this country.

In 1888 he published his first book "General Pathology of Fever."

In 1889 Osler, Halsted and Kelly joined him forming the "Big Four" around whom the Hopkins Medical School was built. A painting by Sargent of the "Big Four" hangs in the Welch medical library. Dr. Welch became its first pathologist-in-chief.

In 1894 he published "The Biology of Bacteria, Infection and Immunity." This was followed by "Bacteriology of Surgical Infection" and "Thrombosis and Embolism."

He isolated the organism causing gas gangrene, the old time foe of the surgeons, and it is known as the Welch Bacillus. In his laboratory and under his leadership many notable discoveries including some bearing on malaria, dysentery, rickets, diabetes, diphtheria, intestinal poisoning, influenza, fungus poisoning and chloroform poisoning and many others were made.

Aside from his innumerable contributions to American medicine he above all others was the greatest stimulus and incentive to other men and was responsible for the development of many notable figures in American pathology and medicine, among them Dr. Flexner, Walter Reed, Carroll, Councilman, Opie, Abbott, Winternitz, Nuttall, Thayer, Barker MacCallum, Howard, Cullen, J. Whitridge Williams and Bloodgood. These prominent men in the development of medicine were inspired by the teaching of Dr. Welch.

No physician has ever received more honorary memberships in different universities throughout the world and it is doubtful if any physician ever held as many offices. He had been president of the following: Board of directors, Rockefeller Institute for Medical Research, since 1901; American Medical Association, 1910-1911; American Association for the Advancement of Science, 1906-07; National Academy of Science, 1913 to 1916; American Social Hygiene Association, 1916 to 1919; Maryland State Board of Health, 1898 to 1922, remaining a member until 1929; Medical and Chirurgical Faculty of Maryland, 1891-92; Congress of American Physicians and Surgeons, 1897; Association of American Physicians, 1901; International Congress on Tuberculosis, 1907; Baltimore Section, League of Nations Association, from the time of its organization until 1929; National Tuberculosis Association, 1910-11, and History of Science Society, 1931.

In 1918 he organized the School of Hygiene and Public Health and was its first director.

In 1926 he was made professor of history of medicine and director of the Institute of the History of Medicine.

Another outstanding talent which Dr. Welch possessed was that of salesmanship to financiers. Through this capacity he was able to raise for the school of medicine and the school of hygiene over $9,000,000 for endowment and on his 80th birthday which was celebrated throughout the world President Hoover proclaimed that "more than any other American he has contributed to the relief of human suffering and pain."

Dr. Welch was a brilliant conversationalist and possessed a memory which was uncanny.

Towering above all of these great attributes stands his marvelous and charming personality, his gentle nature and sympathetic appreciation of the other man's viewpoint. He was always the man whom the students sought when they were in trouble and he always found time to sit and chat with them and advise them. His fatherly nature to all his students was responsible for his name "Popsie," a nickname which really conveyed a reverent significance. This illustrious man of medicine lived a long and fruitful life. His works will always stand as a monument to medicine and his charming personality will forever be cherished by those who were privileged to know him.

THE BAR ASSOCIATION SPEAKS

A victory for the Missouri Bar Association and the Missouri Supreme Court in their effort to clean up the legal profession in this state is comparable with the Missouri State Medical Association's success in ridding the state of quacks and charlatans in the practice of medicine some years ago. This success of the medical profession was not attained without the assistance of the press and we are happy to observe that the press is lauding the efforts of the Supreme Court and the Bar Association in their effort to suppress the unprofessional lawyer and prevent the entry of such unprincipled persons to the bar in the future.

The protection of the public welfare is one of the first duties of both the legal and the medical professions. We are glad to announce therefore at this time that our President, Dr. W. L. Allee, Eldon, at our Session in St. Joseph, May 7 to 10, recommended to the Association the formation of a committee to cooperate with a similar committee from the Bar Association looking toward the intimate and continuous fraternization to keep both professions as free as possible from quacks, shysters and similar vultures.

The Missouri Bar Association has on several occasions endeavored to raise the standard of admission to the bar through legislative enactment. All such efforts proved fruitless, the preponderance of attorneys in both branches of the General Assembly who were opposed to higher standards being sufficient to defeat the bills. Recently another avenue of approach in the solution of this problem was opened when the Missouri Supreme Court in an opinion in the Richard's case declared the Court had the inherent power to regulate the practice of law. Seizing upon this declaration the Hon. Jesse W. Barrett, president of the State Bar Association, requested the executive committee of the association to adopt a resolution asking the Supreme Court to appoint a commission of at least seven members of the bar "to investigate the means of regulating professional matters and that this commission report to the court within such time as the court may direct its findings and recommendations with respect to the regulations of the practice of law in this state." The Supreme Court viewed the resolution with favor and appointed a commission of eleven attorneys to make the investigation and report to the court on or before April 1, 1934. The commission formulated a code of rules intended to simplify disbarment procedures, penalize ambulance chasing and raise requirements for admission to the bar. The commission headed by former Governor Henry S. Caulfield, St. Louis, recommended that the Supreme Court adopt these rules and declare the code in force beginning January 1, 1935.

If adopted, bar committees in each of the thirty-eight judicial circuits of the state will be appointed to hear complaints of unprofessional practices. It will also be the duty of these committees to file disbarment proceedings against accused lawyers in either the Circuit Court or Supreme Court when complaints are well founded. It is recommended that the Supreme Court adopt the American Bar Association's canons of ethics as the measure of conduct and responsibility of Missouri lawyers. Ambulance chasing will then become cause for disbarment. One of the canons recommended for adoption reads in part ". . . it is disreputable to hunt up defects in titles or other causes of action, and inform thereof in order to be employed to bring suit; or to breed litigation by seeking out those with claims for personal injuries, or those having any other grounds of action in order to secure them as clients; or to employ agents or runners for like purposes, or to pay or reward, directly or indirectly, those who bring or influence the bringing of such cases to the lawyer's office; or to remunerate policemen, court or prison officials, physicians, hospital attaches or others who may succeed under the guise of giving disinterested friendly advice in influencing the criminal, the sick and the injured, the ignorant or others to seek his professional services. A duty to the public and to the profession devolves upon every member of the bar having knowledge of such practices on the part of any practitioner, to

inform thereof, to the end that the offender may be disbarred."

None of the proposals made by the commission would require the enactment of new laws.

The commission further recommends higher standards for admission to the practice of law. Briefly, the present law requires an applicant to be at least 21 years of age, of good moral character, a resident of Missouri and have a general education substantially equivalent to a common or grammar school course of study and shall possess a fair knowledge of history, literature and civil government. The commission takes the view that the qualifications prescribed by law are minimum qualifications and presumes the Supreme Court has power to prescribe additional qualifications.

The new rules propose that no person shall be eligible to take the bar examination unless he is a graduate of a four-year high school or its equivalent and that all persons after the rules take effect shall have at least two years of college work or its equivalent before beginning the study of law. The present statutes provide on the point of moral character that the applicant furnish a certificate of three practicing lawyers and a circuit judge to vouch for him. The new rules propose a special investigation shall be made by the Circuit Bar Committee into the fitness of the applicant and in no event will permission be granted to take the examination until such investigation has been completed.

Two other matters were reported on; viz: the practice of law by non-lawyers and needed changes in court procedure. In the former, the legal profession finds itself in a situation similar to that which affects the medical profession; namely, the inroads of non-medical men into the practice of medicine. On this question the commission listed two classes of offenders; first, notaries, real estate agents, justices of the peace and others who do a business of drawing conveyances and contracts; second, banks, trust companies, clubs and associations that furnish legal services through licensed lawyers employed on a salary.

The commission suggests remedies as follows: (1) Criminal prosecution under the statutes, which it is stated might be ineffective, yet would be a deterrent; (2) injunction proceedings by bar groups; (3) quo warranto proceedings against corporations so engaged; (4) disciplining of lawyers employed by corporations engaged in the practice of law.

The commission says "constant watchfulness by some agency representing the bar with authority to act where the occasion arises is necessary to minimize the unlawful practice of law."

An opinion of the Supreme Court of Minnesota has a direct bearing upon the question of non-lawyers practicing law and the employment of lawyers by corporations uttered in the decision of a corporation or a layman practicing medicine. (Granger v. Adson et al (Minn.) 250 N. W. 722, J. A. M. A. (May 19) page 1714.)

> The Supreme Court pointed out that a corporation or a layman could not practice law by employing a licensed attorney, for the profit of the corporation or a layman employing him to act as attorney or counsel for others . . . The court was convinced that it was improper and contrary to statute and public policy for a corporation or layman to practice medicine in a similar way. . . . The law intends that the patient shall be the patient of a licensed physician, not the patient of a corporation or layman. The obligations and duties of a physician demand no less. There is no place for a middleman. In this rule the court could see nothing to prevent life insurance companies from furnishing free examinations to their policyholders, since insurance companies charge no fee and make the examinations in promoting the reduction of insurance hazards. The court could not see any objection to the employment by physicians of technicians and other experts, leaving the results of the work of the technician or expert to be interpreted by a physician as a help to diagnosis.

Hitherto the responsibility for every complaint of unprofessional practice and the filing of disbarment proceedings rested with local grievance committees of the bar association all of the duties of which were performed voluntarily. Much credit is due the Grievance Committee of the St. Louis Bar Association for its activities. If the rules as proposed are approved by the Supreme Court these duties will be performed by thirty-eight local investigating committees with power to take and transcribe sworn evidence of witnesses. This will be supplemented by the Supreme Court's power to issue writs including subpoena duces tecum and dedimus to take depositions. Thus will law practice in the State of Missouri come into its own.

It is hoped the Supreme Court will signify an early approval of these proposed rules. It will be a big step taken forward to curb the shyster and prevent ambulance chasing, all to the interest of the legal and medical professions and the public.

Our Association in Annual Session, May 7 to 10, approved a recommendation made by President Allee in his message to the House of Delegates that close cooperation

exist between the two professions through the medium of a committee to be appointed from the State Bar and State Medical associations. President Allee said: "The organized medical profession has much in common with the organized legal profession. Both organizations are continually striving to maintain the highest professional standards possible not only for professional growth but also in the interest of public welfare. Splendid cooperation between local bar associations and county medical societies has been observed. It is my opinion this cooperation should extend to the respective State Bar and Medical associations. I recommend for your consideration that a committee of three members be appointed from each association to serve for a period of one, two, and three years, respectively; such committee to be known as the Cooperative Medico-Legal Committee of State Bar and State Medical Association; its functions to be to meet and confer as often as may be necessary for the consideration of problems pertaining to the administration of justice, and such other matters as may be conducive toward cooperative relationship between the legal and medical professions and in the interest of public welfare."

THE ST. JOSEPH SESSION

The Seventy-Seventh Annual Session of the Missouri State Medical Association at St. Joseph was the successful culmination of much planning and diligent work on the part of the committees and the Buchanan County Medical Society. Over four hundred members and guests spent four busy and profitable days in the scientific and the business sessions and relaxed only when entertainments filled the hours.

Forty scientific addresses, three motion pictures and two diagnostic clinics were presented at the General Meetings. In addition two diagnostic clinics and one demonstration were held on Thursday morning for those interested in eye, ear, nose and throat work.

The scientific session on Thursday followed the plan that proved so successful at the Kansas City Session last year and the morning session was devoted to papers and discussions on tuberculosis. Dr. George H. Hoxie, Kansas City, presided at this session. In the afternoon specialists in diseases of the eye, ear, nose and throat presented an interesting program on these topics. Dr. John Green, St. Louis, presided at this session.

An innovation presented for the first time at this session proved very interesting and highly instructive. This was the so-called "table demonstrations." These consisted of showing the methods used in the examination of patients leading to a diagnosis and a prescribed treatment. The subjects were rectal disorders, gonorrhea, syphilis, gastro-intestinal diseases, eye, ear, nose and throat diseases, diphtheria immunization, blood typing and biopsy. The demonstrations were given in small rooms seating from 20 to 30 persons and attracted audiences that in a number of cases filled the rooms to capacity. Undoubtedly this feature of the Annual Session will be repeated in 1935. The demonstrations combine a discussion of the practical methods of examination with didactic instructions of how to proceed and what to look for when examining a patient.

Of the numerous amendments to the Constitution and By-Laws introduced at the Monday session only three were adopted. One was an amendment requiring the annual audit and budget to be prepared and published on or before March 31. Another amendment adopted permits county societies to estimate the number of delegates to which they will be entitled at the annual session to be based upon the paid up membership on December 31 of the preceding year. A third amendment that was adopted gives hyphenated societies the right to send a delegate from each of the counties in the hyphenated societies.

The amendment to reduce the annual dues from $8 to $5 was defeated by a large majority and the proposition to exempt members who have reached the age of 68 years and over from payment of the annual dues was also defeated.

All amendments to the Constitution were necessarily laid on the table until the Annual Session in 1935.

A large audience consisting of many laymen and fellow physicians heard addresses by three guest speakers on Tuesday evening; viz., Dr. Walter L. Bierring, Des Moines, President-Elect of the American Medical Association; Dr. John H. Musser, New Orleans, vice president of the American Medical Association, and the Reverend Father Alphonse M. Schwitalla, S. J., St. Louis, dean of the St. Louis University School of Medicine. Drs. Bierring and Musser also conducted diagnostic clinics and presented addresses on technical subjects in the General Meetings. Dr. G. H. Ewell, Madison, Wisconsin, and Dr. Charles M. Swab, Omaha, presented addresses at the General Meetings and Dr. Swab and Dr. Dean M. Lierle, Iowa City, conducted clinics and read papers at the session on eye, ear, nose and throat diseases.

Entertainments included a golf tournament and banquet on Monday, a trap shoot on Tues-

day, a dinner in honor of Dr. E. J. Goodwin, St. Louis, and an entertainment for visiting physicians with the Buchanan County Medical Society as hosts on Wednesday.

The following officers were elected: President-Elect, Dr. E. Lee Miller, Kansas City; Vice Presidents, Dr. Dudley S. Conley, Columbia, Dr. Frank G. Mays, Washington, and Dr. Urban J. Busiek, Springfield; Secretary-Editor, Dr. E. J. Goodwin, St. Louis; Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, Dr. Ross A. Woolsey, St. Louis. Dr. C. H. Neilson, St. Louis, was elected Councilor of the Twentieth District to fill the vacancy caused by the resignation of Dr. Ralph L. Thompson, St. Louis.

Dr. C. T. Ryland, Lexington, was installed as President at the Wednesday afternoon session of the House of Delegates. Dr. Ryland appointed the following members to committees: Dr. W. L. Allee, Eldon, Committee on Public Policy; Dr. C. A. Good, St. Joseph, Committee on Medical Education and Hospitals; Dr. Morris B. Simpson, Kansas City, Revision of Constitution and By-Laws, and Dr. E. L. Johnston, Concordia, Medical Economics. The following whose terms expired were reelected: Dr. J. E. Stowers, Kansas City, Committee on Scientific Work; Dr. M. A. Bliss, St. Louis, Committee on Publication; Dr. M. P. Neal, Columbia, Committee on Postgraduate Course; Dr. O. B. Zienert, St. Louis, Committee on Defense; Dr. Ellis Fischel, St. Louis, Committee on Cancer. These appointments were confirmed by the House of Delegates.

The Association accepted the invitation of the Clay County Medical Society to meet in Excelsior Springs in 1935.

Undoubtedly the St. Joseph Session was one of the most interesting and instructive sessions that we have held in recent years. The attendance was over 400.

OBSERVANCE OF NATIONAL HOSPITAL DAY IN ST. LOUIS

Hospital Day has been celebrated in the United States by all the hospital people for the last fourteen years to commemorate the birth of Florence Nightingale, the greatest of all nurses, who did so much good work in starting and advancing the nursing field and in providing the establishment of training schools for nurses. The celebration occurs on May 12 each year in the hospitals in many countries, and upon this occasion it is the object of all participants to make the work of the hospitals better known to everyone in each respective community.

Miss Veronica Miller, national chairman of the Hospital Day Committee, reports that 1934 Hospital Day has been the biggest and best since the day it was established by Mr. Matthew O. Foley of *Hospital Management* in 1921.

It is very important that Hospital Day be observed in every hamlet and town as well as the large cities because it is a duty of the hospital people to present their institutions, large or small, to the public for inspection and in this way persons not previously acquainted with such institutions will be encouraged to visit hospitals and become acquainted in a friendly and pleasant way with the place in which they may at any time require medical care and attention.

Dr. Ralph L. Thompson, Chairman of the Hospital Day Committee in St. Louis, reports that the hospitals of that city had open house and in many instances furnished some form of entertainment and refreshments were served so as to attract the citizens to their particular institution. In the Municipal Hospitals, the City Sanitarium and the Training School, visitors were conducted through the institutions by individuals who were capable and willing to explain some of the hospital conditions to the end that the public will become more hospital-minded, so that in the event they should at some future time require hospitalization they will enter with a better understanding of the care and treatment they will receive.

RULES TO BROADEN AND CLARIFY FERA ADOPTED

The changes in Rules and Regulations (Bulletin A-4) governing medical, dental and nursing service to persons receiving state or Federal relief recommended by our Association and published in the May issue of The Journal, page 209, have been officially adopted by the Missouri Relief and Reconstruction Commission.

If any society and local relief director in a county receiving Federal relief cannot reach a satisfactory agreement as to the rendering of medical service under this plan it is suggested that the Secretary of our Association be fully informed of the difficulties encountered. The matter will then be presented to Director Crossley through the special Coordinating Committee recently established to advise with and assist local relief directors and county societies under such circumstances.

NEWS NOTES

The St. Louis Medical Society was host on April 26 to the Board of Aldermen of the City of St. Louis. The program was informal.

The second annual dinner for the members of the surgical and medical staff and the executive committee of Barnes Hospital, St. Louis, was held May 7 at the hospital.

Dr. J. Curtis Lyter, St. Louis, was the guest of the Marion County (Illinois) Medical Society at Centralia, April 26. Following a dinner Dr. Lyter delivered an address on "The Treatment of Angina Pectoris of Effort With the Cardiac Hormone."

All city institutions for the care of the sick in St. Louis were open to the public on the fourteenth annual National Hospital Day held May 12 in commemoration of the birth of Florence Nightingale.

Dr. Arthur C. Clasen, Kansas City, delivered an address on "Newer Physiology of the Pancreas" at the annual meeting of the American Gastro-Enterological Association in Atlantic City, April 30.

The Ophthalmic Section of the St. Louis Medical Society elected the following officers at a meeting April 13: President, Dr. Roy E. Mason; vice president, Dr. John F. Hardesty; secretary, Dr. H. Noland Fisher; treasurer, Dr. Otto M. Koenig.

The Missouri Society for Mental Hygiene held a two-day conference and annual meeting in St. Louis on May 9 and 10. Subjects discussed at the different sessions were "Juvenile Delinquency," "Problems of Crime and the Criminal," "Family Background," "Delinquency, Crime and the State Bond Issue" and "Legal Aspects of the Problem."

The St. Louis Neuropsychiatric Society met May 21 at the St. Louis Training School. The program consisted of case demonstrations by Dr. L. A. Miesch, St. Louis; "Cretinism Treated With Thyroid Extract and Growth Hormone," presented by Dr. D. M. Ellersieck and discussed by Dr. August A. Werner, St. Louis, and "Educational Methods at the St. Louis Training School," by Dr. James Lewald, St. Louis.

To arouse interest in St. Louis County's crippled children the St. Louis County Organization for Crippled Children has been formed. By working through existing organizations the new group proposes to arouse interest in the 262 crippled children in the county and to secure adequate medical care for them. Forty-eight of these children are unable to attend school. Dr. Archer O'Reilly, St. Louis, was selected as chairman of the organization.

The Gynecean Hospital Institute of Gynecologic Research of the University of Pennsylvania is conducting an intensive study of families into which congenitally malformed individuals have been born. Special interest centers in families in which malformations have appeared in two or more children. Physicians who have knowledge of any such families are urged to communicate with Dr. Douglas P. Murphy, Gynecean Hospital Institute, University of Pennsylvania, Philadelphia.

The regular monthly meeting of the Section on Medical Economics of the St. Louis Medical Society was held May 17. "What Is an Indigent and Who Deserves Charity Care?" was discussed. Dr. William Patton, St. Louis, superintendent of the St. Louis County Hospital, Dr. Harriet S. Cory, St. Louis, and Miss Edith Baker, St. Louis, director of the social service department, Washington University School of Medicine and Barnes Hospital, spoke and Dr. Carl F. Vohs, St. Louis, opened the discussion.

Forty-four members of the graduating class of 1904 of the St. Louis University School of Medicine gathered at a reunion at the Coronado Hotel, St. Louis, May 14. Twenty-nine others were unable to attend. The class numbered ninety-one at its graduation. Each decade the class has held a reunion. Dr. J. W. Shankland, St. Louis, permanent class president, presided at the festivities. The present St. Louis University School of Medicine was represented by the Reverend Father Alphonse M. Schwitalla, dean; Dr. C. H. Neilson, associate dean, and members of the staff.

The Leslie Dana Gold Medal, awarded annually for the last nine years by Mr. Leslie Dana, St. Louis, to a person selected by the National Society for the Prevention of Blindness and the St. Louis Society for the Blind for outstanding achievements in the prevention of blindness, was presented this year to Dr. Felix de Lapersonne, Paris, France. Dr. de Lapersonne is president of the International Association for Prevention of Blindness and was formerly professor of ophthalmology at the University of Paris, France.

The following products have been accepted by the Council on Pharmacy of the American Medical Association for inclusion in New and Nonofficial Remedies:

Cheplin Biological Laboratories, Inc.
- Ampule Solution Procaine Hydrochloride 2 per cent, 1 c.c.
- Ampule Solution Procaine and Epinephrine, 3 c.c.
- Ampules Bismuth Subsalicylate 2 grains (0.13 Gm.) in Oil, 1 c.c.
- Ampules Solution Mercury Succinimide 1/6 grain (0.01 Gm.), 1 c.c.

Lederle Laboratories
- Refined Diphtheria Toxoid (Alum Precipitated)

Schering & Glatz, Inc.
- Urotropin
  - Urotropin Tablets, 5 grains (0.3 Gm.)
  - Urotropin Tablets, 7½ grains (0.5 Gm.)

Ucoline Products Company
- Ucoline Calcium Phosphate Cocoa Wafers

The twentieth annual tournament of the American Medical Golfing Association will be held at the Mayfield Country Club, Cleveland, Monday, June 11. Thirty-six and eighteen hole matches will be played for fifty prizes offered in eight events. These include the championship event which has as its major prize the famous Will Walter Trophy awarded since 1923 for low gross thirty-six holes. This trophy symbolizes the evolution of medicine. The first handle of the trophy depicts the age of primitive ignorance with shaman witch doctor, spells and the invocation of nature gods to cure ailing mankind from antiquity to 500 B. C. The second handle shows the age of Greek thinkers, bearing the serpents symbolic of Aesculapius, god of medicine, in an age of thought and research from 500 B. C. to 640 A. D. The third handle represents the age of medieval superstition from 640 A. D. to 1500 A. D., with an astrologer, the physician common to the dark ages. The fire of incantation rises behind the figure as he traces a cabalistic sign in the air. The fourth handle depicts the age of modern medical research from the Renaissance to modern time with increasing light spreading from a figure symbolic of an enlarging vision.

Other events and trophies include the Association handicap, 36 holes net, with the Detroit Trophy; the choice score championship, 36 holes gross, with the St. Louis Trophy; the 18 hole gross championship with the Golden State Trophy; the 18 hole handicap championship with the Ben Thomas Trophy; the maturity event with the Minneapolis Trophy; the "Oldguard" championship with the Wendell Phillips Trophy, and the kickers' handicap with the Wisconsin Trophy.

All male fellows of the American Medical Association are eligible to membership. A cordial invitation is extended to every medical golfer to write the executive secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank.

OBITUARY

JOHN H. THOMPSON, M.D.

Dr. John H. Thompson, Kansas City, was born in London, England, January 1, 1852, the son of Dr and Mrs. John Henry Thompson. His parents came to the United States in 1858 and located in Washington when he was only six years old. His father enlisted as a physician in the United States Army and served with distinction during the war between the states. Dr. Thompson attended the schools in Washington. He attended and had the M.D. degree conferred upon him by Georgetown University. He engaged in general practice in Washington for one year, then entered the Columbia University of New York City and the degree of M.D. was conferred upon him by that university. On returning to Washington he was appointed manager of the City Hospital of Washington for a short time. He resigned and entered the University of Stuttgart, Germany, where he remained a year studying eye diseases, then went to Vienna where he completed the special courses in eye diseases. After leaving Vienna he called upon his father, Dr. Thompson, who had located and was practicing ophthalmology in Rome, Italy. While in Rome Dr. Thompson had the great pleasure of examining the eyes of Pope Leo, the Pope being a patient of Dr. Thompson's father. He then returned to Washington for a short time.

Dr. Thompson located in Kansas City in 1882 and specialized in the eye. He taught materia medica in the Kansas City Medical College until it was absorbed by the University of Kansas.

He married Miss Agnes Lester, only daughter of Dr. T. B. Lester, and sister of Dr. Charles Lester. Two daughters and one son were born of this union.

He conducted a biological laboratory in connection with the Kansas City Medical College and was eye surgeon for the Missouri Pacific, Union Pacific and Santa Fe railroads. He was a charter member and past president of the Kansas City Academy of Medicine, a member of the Jackson County Medical Society, the American Medical Association, the American College of Surgeons and American Academy of Ophthalmology and Otolaryngology. He was on the staff of St. Mary's, General and St. Joseph hospitals. He did a great many cataract operations with great success. Dr. H. H. Look, who assisted him for twenty years, said he "never saw but one bad result in all of Dr. Thompson's cataract operations and that was in a very old man."

Dr. Thompson gave 52 years to making people see. No physician ever served with more courage, better effect or better results in Kansas City. No physician has given his life and service to a greater degree or rendered more help to those in need. No one could surpass and few equal his record of professional efficiency. His personality was lovable and obliging.

He began the study of music at the age of fifty and became a very good violinist. He began the study of higher mathematics at sixty and worked many problems in this branch of study. He celebrated his 80th birthday by operating successfully for cataract and then retired. He spoke French, German and English. He was a member of the Kansas City Masonic Brotherhood and Episcopal Church.

Dr. Thompson died at St. Mary's Hospital, April 7, 1934, of angina pectoris. Surviving are a daughter, Mrs. A. A. Poteet, 610 West Sixty-seventh Street; another daughter, Mrs. R. P. Worrall, New York City; a son, J. H. Thompson of 6518 Jefferson Street, and a brother, E. H. L. Thompson, 6830 Overhill Road, Kansas City. Pastor Trelease conducted the funeral services. Burial was in Mt. Washington Cemetery in Kansas City, Missouri.

Hal Foster—in the Jackson County Medical *Journal.*

WALTER P. MATTOX, M.D.

Dr. Walter P. Mattox, Sullivan, a graduate of the Beaumont Hospital Medical College, 1897, died at the Missouri Baptist Hospital, St. Louis, March 22, following a paralytic stroke. He was 64 years old.

Dr. Mattox was born in Jakes Prairie, Crawford County, Missouri. He spent his early years in St. Louis, where he received his education. After obtaining his medical degree he went to Sullivan and became a partner of Dr. J. P. Dunigan. He practiced there for two years then went to Bourbon, Missouri, but remained only a short time returning to Sullivan where he continued his practice until a few days before his death.

He became allied with organized medicine early in his career and took an active part in the Franklin County Medical Society. He was president of the Society in 1926 and 1933, vice president in 1932 and alternate delegate in 1925, 1926 and 1927.

Of Dr. Mattox the Tri-County *Democrat* (Sullivan) said:

> Dr. Mattox, possessing as he did a wonderful personality, had all the essential qualities of a man of high character and therefore of a leading citizen of our city. He was devoted to the interests of his home, was an excellent companion to his wife, and he was unassuming, courageous and a kindly helper to many in need. He was honest and truthful and a man whose integrity was never questioned; a man who by his daily life lived his convictions and set the perfect example of his citizenship before others. Weather conditions and other things which might have detained or hindered one were trivial matters to him and never kept him from going many miles during the worst weather, or sacrificing himself in other ways, to administer medical attention to the sick.

He is survived by his widow, Mrs. Nellie Mattox, one brother and two uncles.

ROENTGEN EVIDENCE OF HEALING IN DUODENAL ULCER

Daniel M. Clark and Milton J. Geyman, Santa Barbara, Calif. (Journal A. M. A., Jan. 13, 1934), discuss the compression technic, the significance of niche disappearance, the time of the disappearance of the niche, the relation of the niche to the contour of the deformity and the efficiency of various forms of treatment as they pertain to the evidence of healing in duodenal ulcer presented by the roentgenogram. From this study the authors conclude that in more than half of all cases of duodenal ulcer the roentgen ray has a definite value in determining the response of the lesion to treatment. Roentgen disappearance of a duodenal ulcer niche following treatment indicates a favorable initial response but does not mean that the ulcer is completely healed. There is a wide variation in the amount of time required for disappearance of the niche. As a general rule, duodenal ulcers heal more slowly than gastric ulcers. Contour deformities of the barium-filled bulb are not entirely dependable in the diagnosis of duodenal ulcer, and they are of little or no value in determining the response of a lesion to treatment.

NEUTROPENIA FOLLOWING AMIDOPYRINE

Arthur M. Hoffman, E. M. Butt and N. G. Hickey, Los Angeles (Journal A. M. A., April 14, 1934), endeavor to determine experimentally the possibility of the production of the neutropenic state by means of amidopyrine. Amidopyrine alone was used in contrast to the combination of Madison and Squier of amidopyrine with allylisopropylbarbituric acid, because amidopyrine was the only drug used in thirteen of the fourteen cases that the authors had observed. Doses of this drug varying from 0.2 to 0.9 Gm. per kilogram given by mouth produce a definite leukocytosis followed in a few weeks by a depression of the total white count. In some of the rabbits the proportion of polymorphonuclear leukocytes has been reduced to as low as 8 per cent, while in all the rabbits the granulocytes have been below 20 per cent during the depression of the total counts. The controls remained unchanged. They conclude that the common factor in amidopyrine, dinitrophenol, benzene, arsphenamine, ortho-oxybenzoic acid and hydroquinone, all of which have produced neutropenia experimentally or clinically, is the benzene ring. Whether the latter is the actual toxic agent in the production of neutropenia needs further experimentation. Whether this is an individual susceptibility of the nature of an allergic reaction, as suggested by Pepper, remains to be determined. They believe that until it is determined, the use of amidopyrine alone or in combination with other drugs should be restricted to patients having leukocyte counts several times a week.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society was called to order by Dr. Spencer L. Freeman, Kirksville, April 5, at the office of Dr. J. W. Martin, Kirksville.

A request from the Committee on Birth Control from the State of New York was tabled indefinitely.

Dr. E. S. Smith, Kirksville, moved that the secretary write Dr. I. M. Nulton, Lancaster, president of the Schuyler County Medical Society, that the Adair County Medical Society is anxious for affiliation and if there is any question that can be ironed out the Society will be glad to do so or take it up with the Missouri State Medical Association at the St. Joseph Session. Seconded by Dr. J. W. Martin, Kirksville, and carried.

Resolutions submitted by the St. Louis Medical Society were turned over to the delegates for study.

Dr. George Grim, Kirksville, talked on "Nephritis."

Dr. H. B. Elkins spoke on "Roentgen Ray Diagnosis in Nephritis."

A general discussion followed and Dr. Freeman moved that a vote of thanks be extended the essayists for their work.

Present at the meeting were Drs. Spencer L. Freeman, J. W. Martin, E. S. Smith, J. F. Dodson, George Grim, A. F. Miller, Kirksville; H. M. Humphreys, Brashear, and J. S. Gashwiler, Novinger.

Dr. Elkins made application for membership.

BUCHANAN COUNTY MEDICAL SOCIETY

The regular meeting of the Buchanan County Medical Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital April 18.

Dr. W. T. Stacy made a motion which was seconded by Dr. J. H. Sampson that the president appoint a committee of three to study the possible revision of the by-laws subject to the approval of the Society and to edit the by-laws. The following were appointed to serve: Dr. W. T. Stacy, chairman; Dr. Daniel Morton and Dr. Emmett F. Cook.

A letter was read by the secretary from the St. Louis Medical Society regarding the proposed amendments to the Constitution and By-Laws of the Missouri State Medical Association and requesting approval by the Buchanan County Medical Society. A motion was made by Dr. W. T. Elam, which was seconded, that the delegates be instructed to support that portion of the proposed changes which has to do with the reduction of dues from $8 to $5 per year.

Dr. T. L. Howden presented an address illustrated by lantern slides on "The Diabetic Clinic" discussing the clinic conducted in St. Joseph by the Social Welfare Board. He received many compliments for the able manner in which he handled the subject. The discussion which followed was participated in by Drs. H. W. Carle, Daniel Morton and A. H. Muench.

Meeting of May 2

The Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital with thirty-three present.

Dr. Cabrey Wortley, having been a provisional member for one year and his application having been favorably acted on by the board of censors, was unanimously elected to permanent membership.

The secretary read a letter from Dr. John Hayward, former president of the St. Louis County Medical Society, relative to medical economics especially as related to the abuse of charity in the free clinics and hospitals and asking that the delegates from all component societies be instructed to vote for a remedy to these conditions when it is presented at the State Meeting. Motion by Dr. W. T. Elam and seconded by Dr. C. A. Good that the communication be received and placed on file.

Dr. L. R. Forgrave, chairman of the committee on fee bill, reported. On motion by Dr. F. H. Spencer, seconded by Dr. W. T. Stacy, the copy of the fee bill was received and ordered handled according to the by-laws. After considerable discussion the motion carried.

Dr. F. Gregg Thompson delivered an interesting and instructive address on "Section of the Phrenic Nerve in the Neck." This was discussed by Drs. C. A. Good, T. L. Howden, Riley Waller, A. B. McGlothlan, Daniel Morton, W. D. Webb and closed by Dr. Thompson.

Emmett F. Cook, M.D., Secretary.

CALDWELL-LIVINGSTON COUNTY MEDICAL SOCIETY

The Caldwell-Livingston County Medical Society met April 12 at Chillicothe.

A report on tuberculin tests made by members of the Society on numerous contact cases on April 10 was read. Nineteen roentgen ray chest films were ordered and made.

At 6:30 p. m. the Society met at the Leeper Hotel for a dinner honoring the guest speakers sent by the

Postgraduate Committee of the State Association, Drs. Sam Snider, E. R. Deweese and Hubert M. Parker, Kansas City.

The meeting was called to order by the president, Dr. H. M. Grace, Chillicothe, and the films which had been prepared were discussed and the positive tuberculin tests compared.

Dr. Parker spoke at length on "The Etiology of Childhood Tuberculosis, the Tuberculin Test and Its Significance." Drs. Snider and Deweese discussed "The Roentgen Ray and Clinical Phases of Tuberculosis."

This was an exceptionally good meeting and the members felt much indebted for the efforts of the local tuberculosis association and the Postgraduate Committee of the State Association.

Members present were Drs. H. S. Dowell, D. M. Dowell, R. J. Brennan, R. Barney, J. H. Timberman, C. M. Grace and H. M. Grace, Chillicothe; C. H. Wilbur, Polo; G. S. Dowell and H. H. Patterson, Braymer; F. H. Metz, Chula, and G. W. Carpenter, Utica.

Donald M. Dowell, M.D., Secretary.

CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met March 29 at Van Buren with all members present. The Society acted as hosts to lay and medical visitors at a cancer clinic sponsored by the Missouri State Medical Association and conducted by Drs. Charles F. Sherwin, Garold V. Stryker and L. H. Jorstad, St. Louis.

Six counties were represented by medical men and the people of the Twenty-Fourth District made a large audience. About fifteen clinic patients availed themselves of the opportunity.

Never before has this section manifested so much interest in the measures of early recognition, prevention and proper treatment of cancer.

W. T. Eudy, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met at Excelsior Springs February 27. The scientific session was held at the Veterans' Hospital preceded by a dinner at the Snapps Hotel. Dr. Eugene C. Robichaux, Excelsior Springs, president, called the scientific session to order.

The committee which was appointed to formulate the plan for the cooperation of the Clay County Medical Society with the FERA consisting of Dr. F. H. Matthews, Liberty, chairman; Dr. S. R. McCracken, Excelsior Springs, and Dr. H. R. Staley, North Kansas City, gave their report.

Dr. Eugene Robichaux reported a case of adenocarcinoma of the ovary with ascites of 1200 or more cubic centimeters of fluid. Possibilities were discussed and study of cavity fluid sedimentation and paraffin sections stained to determine cell content were given. Pathology was given from a report from St. Joseph's Hospital, Kansas City.

Dr. Cook, Excelsior Springs, discussed "Tuberculosis and Its Diagnosis" illustrating with lantern slides and giving many valuable points for diagnosis and differentiation.

Dr. Dolan, Excelsior Springs, presented a paper on "Hypertensive Heart Disease" giving a resumé of the literature and of his experience and suggested rest as the chief method of treatment, diet seeming not to have much effect on the progress of the disease and drugs apparently not giving permanent results.

Discussion was by Drs. J. V. Dauksys, Eugene Robichaux and J. E. Baird, Excelsior Springs.

Meeting of April 26

The April meeting convened at the Major Hotel, Liberty. The Auxiliary joined in a substantial dinner at 6:30 p. m. Those present were Drs. C. H. Suddarth, Y. D. Craven, J. V. Dauksys, J. E. Baird, W. J. James, J. A. Howell, J. E. Musgrave and Eugene B. Robichaux, Excelsior Springs; H. R. Staley, North Kansas City; F. H. Matthews, R. E. Sevier, W. L. Wysong, J. H. Rothwell and W. H. Goodson, Liberty.

In the absence of the secretary, Dr. J. J. Gaines, Excelsior Springs, Dr. W. H. Goodson was chosen secretary pro tem.

The Society, by unanimous vote, announced its intention to invite the State Association to meet in Excelsior Springs in 1935 as guests of the Clay County Medical Society.

Dr. Eugene B. Robichaux, president, requested Dr. F. H. Matthews to introduce the speaker of the evening, Dr. R. Lee Hoffmann, Kansas City, who spoke on "Prostatic Problems." The doctor put much stress on the transurethral cutting operation and its end results pointing out that it is not adaptable to all obstructive prostatic cases. He gave valuable advice as to preparation of the prostatic patient for operation of any sort, a precaution most important in any case. He warned the general practitioner to think of the prostate as a possible source of trouble in all male patients beyond fifty years of age who show signs of failure in that locality. Dr. Hoffmann is an appreciated friend of Clay County's profession.

The secretary pro tem was instructed to write Dr. Gaines a letter expressing the Society's good will and hopes for his early recovery.

Dr. F. H. Matthews, in charge of the Odd Fellows' Hospital, Liberty, invited the Society to hold its June meeting at the Hospital. The invitation was unanimously accepted.

Wm. H. Goodson, M.D., Secretary Pro Tem.

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

The Dallas-Hickory-Polk County Medical Society met at Bolivar, April 3.

Guests from Springfield furnished the scientific program as follows:

"Infection of the Hand" by Dr. Wallis Smith.

"Cataract Surgery in India" by Dr. Souter Smith.

Following the scientific program dinner was served by members of the Bolivar Methodist Church to the guests, members and their wives.

The following members were present: Drs. D. C. McCraw, D. E. Hammondtree, C. V. Steward and J. F. Roberts, Bolivar; C. H. Brown, Fair Play; G. C. Plummer and V. I. Greenwood, Buffalo; L. A. Glasco, Hermitage; A. S. Johnston and J. L. Johnston, Wheatland; R. E. Harrell, Urbana; A. J. Stufflebam, Humansville, and W. O. Reser, Weableau.

Meeting of May 1

The meeting was called to order at Cross Timbers by Dr. R. E. Harrell, Urbana, president. The following members were present: Drs. G. C. Plummer and V. I. Greenwood, Buffalo; L. A. Glasco, Hermitage; J. L. Johnston, Wheatland; J. W. Murray, Quincy; J. M. Edwards, Cross Timbers; R. E. Har-

rell, Urbana; W. O. Reser, Weableau, and A. J. Stufflebam, Humansville.

Our guests from Springfield furnished the scientific program of the evening as follows:

Dr. Fred A. Stahl, Springfield, presented an obstetrical case history and an interesting discussion.

Dr. Robert Vinyard, Springfield, discussed "Treatment of Pyelitis in Pregnancy."

J. L. Johnston, M.D., Secretary.

GRUNDY COUNTY MEDICAL SOCIETY

The Grundy County Medical Society met April 3 with a good attendance.

Dr. Deborah Doan, Trenton, read an interesting paper on "Mastitis." A general discussion followed.

Meeting of May 1

The Society met on May 1 in the Trenton Trust Company Building at Trenton with a good attendance.

After the usual business had been transacted, Dr. William Fuson, Trenton, read a paper on "Sickle Cell Anemia." He also presented a clinical case.

The paper was interesting and instructive and a general discussion followed.

E. A. Duffy, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met March 27 with nine members present. Dr. J. W. Hardy, Joplin, presided.

A communication from the American Medical Association relative to community public health was read and discussed. The secretary was instructed to fill it out and return it.

Dr. J. E. Douglass, Webb City, reported on cases in the Jasper County Tuberculosis Hospital.

Dr. O. T. Blanke, Joplin, reported that Dr. A. E. Hertzler, Kansas City, would be present at a dinner meeting on April 24.

Dr. James reported that there would be an all day meeting on cancer on April 10.

It was resolved to send the following note of condolence to Mrs. K. B. Huffman, and also spread it on the minutes:

The members of the Jasper County Medical Society desire to extend to you their sincerest sympathy on account of the untimely death of your husband, Dr. K. B. Huffman. He was a valuable member of our Society. We realize our loss and all who knew him well loved him. We knew him as a good doctor and a good citizen. You knew him as a good husband and a good father. We trust that you believe us sincere and that it will in a measure abate your extreme grief during your bereavement.

Meeting of April 10

The Society met April 10 with Dr. Ellis Fischel, St. Louis, as guest speaker. The address was a feature of the local observance of national cancer week. A large number of physicians and laymen from the four-state district attended. The subject of Dr. Fischel's lecture was "Early Recognition of Cancer, Surgery in Cancer and the Curability of Cancer."

Dr. Ed James, Joplin, president of the Society, presided and Dr. Fischel was introduced by Dr. A. M. Gregg, Joplin.

Meeting of April 17

The president opened the meeting with a discussion on the use of dinitrophenol as a reducing agent stating that there have been inquiries at the drug stores as to its use. It was moved and seconded that a communication from the Society be given to the local newspaper relative to the dangers of any weight reducing drug. Motion carried. The president appointed Dr. L. C. Chenoweth, Joplin, to prepare this communication for the paper.

Dr. L. B. Clinton, Carthage, reported two cases of crushing injuries to extremities treated with prophylactic doses of gas bacillus antitoxin at once and in spite of further treatment both patients died of gas bacillus infection. Similar experiences were reported by Dr. B. E. DeTar, Joplin.

Dr. W. S. Loveland, Joplin, reported a case of amebic dysentery that responded promptly to proper treatment. Dr. Clinton discussed the subject.

Dr. B. E. DeTar, Joplin, reported a case of a ruptured uterus following the administration of 1 c.c. pituitrin in the presence of pregnancy and stenosed cervix. The omentum and intestines had walled off the tear.

Dr. R. E. Myers, Joplin, reported a case of sudden one-sided blindness in a patient aged 62 years having a four plus Wassermann with no previous symptoms.

Dr. H. D. McGaughey, Joplin, reported two cases: (1) A case of delayed metastasis following operation for cancer of the uterus eight years previously. Has had roentgen ray treatment with no improvement. (2) Giant cell sarcoma of femur with radium treatment four and three years ago. Now shows metastasis in right ilium, lumbar vertebrae and sacrum.

Meeting of April 24

The Society was host to Dr. A. E. Hertzler, Halstead, Kansas, at a dinner April 24 held in the Connor Hotel, Joplin.

Following the dinner Dr. Hertzler addressed the Society on "Diagnostic Problems of the Acute Abdomen." The subject was discussed informally by a number of the members and visiting physicians.

There were about seventy doctors present, including a gratifying group of visitors from the four-state district

Paul W. Walker, M.D., Secretary.

LAWRENCE-STONE COUNTY MEDICAL SOCIETY

The Lawrence-Stone County Medical Society met at the Pierce City Clinic, Pierce City, March 20.

Dr. L. Mason Lyons, Pierce City, presented a paper on a rare and interesting condition, "Lipoma of the Tongue."

Dr. S. P. Child, Mount Vernon, addressed the Society on "The Tuberculosis Problem in Preventive Medicine."

Meeting of May 1

The Society met at the Aurora Clinic, Aurora, May 1.

Dr. W. Carey Cheek, Springfield, presented a paper on "Chronic Sinusitis."

Dr. F. A. Harrison, Springfield, discussed the same problem in relation to children and infants.

The Society adopted a policy of each physician carrying out the public immunization for diphtheria, smallpox, etc., of his patients in his own office, charging for the service except in the case of charity patients. The Society objected to the indiscriminate administration of immunizations whereby the physicians have been called upon to donate their time and materials without recom-

pense to all children most of whom were not charity cases.

Vern T. Bickel, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met March 13 in the Chamber of Commerce rooms at Moberly at 8 o'clock. The meeting was called to order by the president, Dr. C. H. Dixon, Moberly.

The secretary read the recommendations of the St. Louis Medical Society regarding changing the By-Laws of the Missouri State Medical Association. After some discussion the motion was made that our delegate be empowered to use his own judgment on all questions that come up before the House of Delegates excepting that he request the dues be reduced from $8 to $5.

Dr. M. E. Kaiser, Moberly, read an interesting paper on "Pleurisy and Its Complications" which was demonstrated by radiograms. A general discussion followed.

Those present were Drs. C. H. Dixon, F. L. McCormick, M. E. Kaiser, L. E. Huber, G. I. Allen, L. O. Nickell, O. K. Megee and C. C. Smith, Moberly; and Dr. C. F. Burkhalter, Higbee.

Meeting of April 10

The Society met April 10 in the Chamber of Commerce rooms at Moberly, Dr. C. H. Dixon, Moberly, presiding.

Dr. O. K. Megee, Moberly, read a paper on "Mastoiditis" which was practical and instructive; a general discussion followed.

Mr. E. H. Bartelsmeyer, St. Louis, Assistant Secretary of the Missouri State Medical Association, explained how it might be possible to receive Government aid in caring for the indigent poor who had not been cared for by the city prior to the CWA act. The Society voted to do the work free for these persons if the Government would reimburse them for their actual expenses which would mean about 50 per cent of the present prices. It is understood that the Government does not pay for hospital cases nor major operations; also, that only graduate physicians are included in this list.

Those present were Drs. O. K. Megee, T. S. Fleming, L. E. Huber, L. O. Nickell, G. I. Allen, M. E. Kaiser and F. L. McCormick, Moberly; D. A. Barnhart, Huntsville, and R. A. Wood, Clark.

F. L. McCormick, M.D., Secretary.

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met at the office of Dr. Ida M. Nulton, Lancaster, at 2 p. m., April 10. Those present were Drs. Ida M. Nulton, J. H. Keller and A. J. Drake, Lancaster; and H. E. Gerwig and J. B. Bridges, Downing.

The matter of changes in the Constitution and By-Laws of the State Medical Association, proposed by the St. Louis Medical Society, was discussed and upon motion of Dr. H. E. Gerwig seconded by Dr. J. H. Keller, the Society voted "No" on the amendments.

The consolidation of Schuyler County Medical Society with the Adair County Medical Society was discussed and laid over until the next meeting.

The present officers of the Society were reelected: Dr. H. E. Gerwig, Downing, was appointed delegate and Dr. A. J. Drake, Lancaster, alternate.

J. B. Bridges, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at Houston April 25 at a dinner at 1 p. m. with about twenty physicians and the wives of several present.

A public meeting was held at 2:30 p. m. at the Melba Theater where there were over a hundred women present and a number of physicians. Dr. J. C. B. Davis, Willow Springs, presided.

Dr. Quitman U. Newell and Dr. T. K. Brown, St. Louis, spoke on "Prenatal Care" and "Infection of Childbirth" and stressed the importance of pregnant women seeking medical care that the dangers incident to their condition may be avoided as far as possible; also the need of physicians realizing the importance of giving women the care needed.

Mr. Del Martz, St. Louis, representing the Mead Johnson Company, presented a reel of motion pictures on "The Preparation of the Baby's Food."

At about 3:30 p. m. the lay audience was dismissed and after a short recess the scientific session was opened with about thirty physicians present. Drs. Newell and Brown addressed the physicians on the same subjects as already given to the lay audience but going into the subject more fully and more technically. Mr. Martz showed motion pictures on obstetrics showing very fully the subjects of external version, breech presentations with application of forceps to the after-coming head, midforceps delivery, spontaneous delivery, episiotomy, obstetric analgesia by nerve blocking and several other manipulations.

The secretary read the following resolution and moved its adoption which was seconded by Dr. A. H. Thornburg, West Plains, and unanimously adopted:

RESOLUTIONS RELATIVE TO DAIRY PRODUCTION PROGRAM OF THE AGRICULTURAL ADJUSTMENT ACT

Whereas, The Agricultural Adjustment Act recently passed by our present Congress and signed by the President is now in force and carries with it an appropriation of $165,000,000 for the purpose of reducing Dairy Production, and in a speech recently given over the radio at Kansas City, Missouri, Secretary Wallace recommended the setting aside of $5,000,000 for the removal of diseased cattle, and $5,000,000 to buy healthy cows for replacement purposes, and $5,000,000 for the purchase of surplus milk to be distributed among needy children, and

Whereas, This Dairy program will cover two or more years for its completion, and inasmuch as it is now known that the disease common in dairy herds, chronic or habitual abortion, is caused by the germ Brucella abortus, is also the germ causing undulant fever in man and is easily transmitted through the milk of the diseased cows, and inasmuch as it is known that cows once infected with this germ are rarely if ever cured and are a dangerous menace to the purity of the milk produced by the whole herd in which they are found, now therefore be it

Resolved, That the South Central Counties Medical Society urge the State Board of Health to take steps at once to secure the necessary funds from the above appropriation to have the dairy herds of this State examined for both bovine tuberculosis and habitual abortus in our herds that these diseases may be stamped out at the earliest possible time. We suggest that at least an appropriation of $350,000 for the first year, and $300,000 for the second year be secured, and after that time the State be urged to carry on the work to completion. This examination of the dairy herds for the germ Brucella abortus should be extended to those handling and working with the cows to determine if there be any carriers of undulant fever among the dairy workers.

Resolved, That a copy of these resolutions be sent to the Missouri State Board of Health at once for immediate action, and that a copy be sent to the Secretary of the Missouri State Medical Association with a request that the State Association take action on this matter at its meeting in St. Joseph, in May of this year.

Dr. L. M. Edens, Cabool, was elected delegate to the State Meeting in May and Dr. J. R. Womack, Houston, alternate.

A. C. Ames, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

12th Annual Meeting, Cleveland, June 11-15, 1934

President, Mrs. James Blake, Hopkins, Minnesota.
President-Elect, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, 1935

President, Mrs. William H. Goodson, Liberty.
President-Elect, Mrs. M. Pinson Neal, Columbia.
Advisory Counsel, Dr. J. F. Harrison, Mexico.

The tenth annual meeting of the Woman's Auxiliary to the Missouri State Medical Association convened in St. Joseph May 8 and 9 with a large attendance.

The following is an excerpt from the address of the president, Mrs. Hudson Talbott, St. Louis.

Excerpts From the Address of the President, Mrs. Hudson Talbott, St. Louis

This administration has endeavored to uphold the high standard of service and to conform to the same plan of service as that adopted by the national organization.

During the summer much correspondence was carried on with national and state board members. A total of 567 letters and cards have been sent from the president's office, 49 of which were courtesy letters.

A board meeting was called for September 20 at the Pierce Pennant Hotel, Columbia. The response to this call was most gratifying as was the interest and spirit. There were thirty-eight board members present. This might be called the Quarterly *Bulletin's* birthday as a motion was passed to investigate the advisability of publishing an official organ. The committee worked out a plan whereby we could put out a quarterly bulletin without expense to the organization or to members. The bulletin has perhaps been the most radical step made by this administration. It would have been impossible without the zeal, the untiring energy, the literary and business ability of our press and publicity chairman, Mrs. M. P. Overholser, Harrisonville. This has been an interesting and inexpensive experiment. The continuance of the *Bulletin* rests with the action of this meeting.

In response to the questionnaire sent by the president in March the following facts and figures have been obtained, based on the reports of twenty counties: There is a total of 866 members; 97 new members; 119 delinquent members; 4 lost by death; 12 counties holding monthly meetings; 9 counties holding quarterly meetings; 18 counties using treasurer's receipt books; 7 counties using filing cards; 10 counties having printed yearbooks; 16 counties following suggestions of state program chairman; 15 counties cooperating with other organizations in health programs; 8 counties cooperating with county or state health department programs; 14 counties sponsoring the essay contest; 283 essays turned in for contest; approximately 800 essays written for contest; 475 *Hygeia* subscriptions, and 17 public relations meetings.

We are happy indeed to welcome a new member to our family of counties. On April 14, our organization chairman, Mrs. Ola Putnam, Marceline, organized Grundy County with eight charter members. Mrs. E. A. Duffy, Trenton, is president.

Although we have only one new organization to report there has been a great revival of interest in several old ones.

The state president has served on the survey committee of the State Tuberculosis Association. Two of our board members have served as directors in the Missouri Relief and Reconstruction Commission.

Handbooks and the Milwaukee minutes were distributed through the president's office to board members.

The membership file has been revised and rearranged.

Five hundred of "The First Twelve Years," a history of the American Medical Association Auxiliary to date which has been compiled and edited by our own gifted and energetic Mrs. Willard Bartlett, St. Louis, have been provided for distribution at this meeting.

I wish to express my obligation and profound gratitude to the officers and chairmen of the board. Without the support and inspiration which they have so generously contributed, I would have been helpless indeed. I thank the county presidents, too, who have been prompt and accurate in their responses to my requests. Whatever success has attended this administration is due to the loyalty and cooperation of the efficient committee chairmen and other board members. I thank the auxiliary's real friends, Dr. Goodwin and Dr. Harrison, for the renewed evidences of their interest and faith in us. We are grateful, too, to Dr. Allee and Dr. Ryland for their support and encouragement. We appreciate the service of Dr. Cory and Dr. Goodwin as judges of the Essay Contest. Words are inadequate to express our gratitude to our hostess auxiliary for their gracious hospitality and their painstaking plans for our comfort and pleasure.

The year is past; the memory of it will live with me as a happy and rich experience. I shall be always grateful to you for the opportunity and honor of serving as your tenth president.

NICKEL CARBONYL POISONING

W. W. Brandes, Dallas, Texas (Journal A. M. A., April 14, 1934), reports a case of nickel carbonyl poisoning in which the clinical and pathologic features corresponded closely with those of the cases reported previously. The histologic changes in the lungs were quite unusual and corresponded more nearly with descriptions of observations in the lungs damaged by irritating substances such as phosgene. The changes in the capillaries and arterioles explain the presence of multiple small hemorrhages; also the degenerative changes and areas of anemic necrosis in the brain. That these changes were due to the nickel is indicated by the presence of this metal in relatively large amounts in the tissues analyzed. The lesions were not the result of the carbon monoxide present, since at that early stage, seven days, sufficient carbon monoxide should have been present to give a positive test if it were the substance that had caused the widespread lesions. Furthermore, carbon monoxide does not cause the type of lesion that was present in the lung. Armit demonstrated that nickel appeared to be transported in the blood in a condition of colloidal solution. The metal is gradually absorbed from the lung in animals poisoned with nickel carbonyl, to such a degree that recovery is possible. The symptoms of extreme dyspnea, nausea and vomiting, restlessness and hyperactivity of reflexes may in part at least have been due to the cerebral lesions.

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THE TREATMENT OF SOME DISEASES OF THE BLOOD

J. H. MUSSER, M.D.
AND
D. O. WRIGHT, M.D.
NEW ORLEANS, LA.

Under this very broad title we propose to discuss the treatment not only of the anemias but also several diseases which are usually classified not as anemias but as diseases of the blood. There will be included in this list idiopathic purpura, hemophilia, polycythemia, leukemia and agranulocytosis. These morbid entities are picked out for a discussion of their management chiefly because they have had intensive study in the last few years, studies which have resulted in the development of types of treatment which have proved most efficacious.

In order to present first the account of treatment of the anemias, it might be well worth while to deal briefly with the classification of those conditions which are associated with a deficiency in the number of red cells and the amount of hemoglobin. Only a few years ago Minot,[1] writing in Oxford Medicine, gave a very satisfactory classification of anemias which now has gone by the board largely as a result of recent investigations in the anemias due to vitamin deficiencies. Many of the facts of Minot's classification still stand, others do not. He classified the anemias from the satisfactory standpoint of their genesis. His classification is: (1) Anemia due to blood loss; (2) anemia dependent largely or wholly on defective blood formation; (3) anemia in which blood destruction is marked and where the anemia is dependent largely or wholly on blood destruction. This classification of anemia was particularly happy, but one of the most important types of anemia, pernicious anemia, which is listed in group 3, has to be reclassified in view of our subsequent knowledge concerning the etiology of the disease. In the section of diseases of the blood in Tice written by Wintrobe[2] and one of us the old division of anemias into a primary and a secondary group was abandoned because of its incompleteness and its failure to point out the etiologic condition responsible for the anemia. Our classification followed closely that of Minot. It was: (a) Anemia due to blood loss; (b) defective blood formation and (c) hemolytic anemia. Again, a fundamental defect in this classification is the necessity of including pernicious anemia as a hemolytic anemia. Most satisfactory is Wintrobe's[3] classification. He groups the anemias on the basis of their principal morphologic characteristic, their size. This classification follows: (1) Macrocytic anemia; (2) normocytic anemia; (3) simple microcytic anemia, and (4) hypochromic anemia. This classification has merits. It is possible to classify the type of anemia with a real degree of accuracy. The present day trend is to point out and to stress in the diagnosis the etiologic factor responsible for the disease. This classification does not supply this desidiratum, although only a minimal knowledge of hematology is needed in order to place in its proper etiologic niche each of the various anemias.

On the basis of Wintrobe's classification under the macrocytic anemias would be included pernicious anemia, sprue and the so-called pernicious anemia of pregnancy. The normocytic anemia would include those anemias which follow acute hemorrhage and aplastic anemia. The simple microcytic anemia is the type that occurs in various infections and intoxications, while under hypochromic microcytic anemia there would be included a new entity in which the term indicates the most characteristic feature, as

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Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

well as those anemias in which there is marked blood loss.

Recently Ottenberg[4] brought out a classification which is simple, comprehensive and modern. He classifies the anemias in three broad groups: (1) Anemia from deficiency; (2) directly through the blood-making organs; (3) blood destruction from whatever cause. This classification is based upon etiology and not upon the morphology of the red cells, as done by Wintrobe. Both of these two classifications are appropriate in view of our present day knowledge of the anemias and in both of them may be classified accurately those conditions which have been recently intensively studied; examples of which are the hypochromic anemia of middle aged females, and sprue.

THE MACROCYTIC (HYPERCHROMIC) ANEMIAS

It is in the treatment of this group of anemias that the most spectacular but exact developments have occurred in the last few years. Because of the general interest that has been aroused by the successful results of liver therapy we are going to spend a few minutes in discussing chiefly the most outstanding example of this type of anemia, namely the pernicious type. In reviewing the patients we have seen with this type of anemia in the last eight years we have taken the opportunity of analyzing the most salient features of this disease. It so happens that in this course of eight years we have the complete clinical records of some thirty-two cases in whom the diagnosis was pernicious anemia unreservedly. This number is entirely too small to do more than generalize, but we can indicate some of the clinical facts which may be observed in pernicious anemia and point out some of the unusual changes and reactions that have occurred in the treatment of these people.

SEX AND AGE

The discrepancy that occurs between the number of white males, twenty-eight all told, as contrasted to three white females and one colored female among thirty-two cases, is due to the fact that the majority of our patients are males. The average age was 61.1, with several very old patients, one being 85, another 84, a third 81, still another one 80, remarkably old ages for the development of this condition. Only one patient was under the age of 40 and he was 36. This patient might possibly have been a case of sprue but that could not be definitely determined. These figures substantiate the usual concept of pernicious anemia; that it is essentially a disease of old life. With a tendency for individuals to live more years than they did in the past, naturally the incidence of pernicious anemia will probably increase to figures which years ago would have been considered quite remarkable. It has been noted that more people develop the symptoms of Addisonian anemia after they pass the age of 60 than under this age. This statement certainly is truthful, judging from our limited group of cases.

CHIEF COMPLAINTS

Naturally the most frequent complaint in this group of patients was weakness, or one of the symptoms of or one of the synonyms for weakness, twenty-nine of our thirty-two patients listing this particular complaint as one of their chief troubles. Particularly fascinating was the revelation of the extremely high incidence of gastro-intestinal complaints of one type or another. In our series of patients sixteen complained chiefly of diarrhea and there were fourteen with or without diarrhea who had nausea and vomiting among their most annoying symptoms. Additional substantiation of the frequency with which the alimentary tract, of all the systems or tracts in the body, exhibits the most remarkable and frequent symptoms is shown by the fact that sixteen of all the patients suffered from sore mouth; as well as in most instances simultaneously being disturbed by gastric or intestinal symptoms. In our group thus we found that weakness or fatigue, diarrhea and sore mouth are the three expressions of pernicious anemia that are paramount in importance to the patient who has the subjective complaints of this disease.

Headache, usually assumed to be one of the commonest symptoms of severe anemia, was noted in only eight instances as being of sufficient importance to be listed as one of the major complaints. Cerebral symptoms such as headache or dizziness were present in twelve instances, the headache being noted by eight, the dizziness by four. Strange to say only two patients had definite neurologic complaints, these being tingling and paresthesia of the legs noted as one of the most disturbing symptoms.

DURATION OF ILLNESS

We had three patients who dated the onset of their illness to that time when they developed acute symptoms such as diarrhea, nausea and vomiting, so that in so far as they knew they were sick only a few days and at the most a few weeks. Three patients

had noted their symptoms for two months, only one for four months, one for five months, four for six months and one for seven months. In terms of years four patients thought they had been sick for a period of a year, two for three years, three for four years, one for five years and one for seven years. In the remaining patients the date of onset of their sickness was so nebulous in their minds that it is not worth while attempting to list how long they had been ill.

PHYSICAL EXAMINATION

Pallor of the skin was noted in thirteen cases while the so-called characteristic feature of pernicious anemia, a tendency to yellowish discoloration, was observed in sixteen patients. It cannot be accentuated too strongly that the state of the tongue is an extremely important objective diagnostic criterion. For example, in the physical examination of these patients the tongue was called atrophic in nine instances, smooth in nine and red in thirteen, so that practically every patient had a characteristic lingual mucous membrane. The spleen is often enlarged in pernicious anemia but in only three of our group of patients was this observation made. The liver was enlarged in four instances.

The heart in pernicious anemia may undergo hypertrophy. In our series of patients, in spite of the advanced age of many of them, in only six instances was this organ enlarged. In the other cases apparently it was normal in size. Rather interesting, also, is it that again in spite of the advanced age, in many of the patients basal murmurs due to arteriosclerosis were observed in only seven instances. In four cases there was a systolic mitral murmur at the apex, again rather remarkable in view of the frequency with which functional apical murmurs are likely to be observed in patients with pronounced anemias. The only important cardiac complication, which doubtless had no relation to the pernicious anemia, was observed in a man who had auricular flutter. The average blood pressure of this group was systolic 110.3, diastolic 63.5. The highest systolic was 160, the lowest was 75. The highest diastolic pressure was 85 and the lowest was 45. These figures for blood pressure point to the obvious; it is good for the cardiovascular system of an individual to have pernicious anemia and if he develops this disease the likelihood of his dying from a vascular catastrophe is highly unlikely. Only two patients gave evidence of cord changes as shown by loss of vibratory sensation in the lower extremities.

CONDITION ON DISCHARGE

Twenty-one of these patients left the hospital improved. Three were unimproved and three died; in four the condition on discharge was not stated. One patient is still in the hospital.

LABORATORY STUDIES

Gastric Contents.—Twenty-seven of the patients had an absence of free hydrochloric acid, two had hydrochloric acid; in the others the gastric survey was unsatisfactory. Only three of these patients had occult blood in the feces.

Blood Count.—Some of the patients entered the hospital with an extremely severe anemia; in others the anemia was relatively slight but in no instance was the total number of red cells over 3,500,000. On the contrary, ten patients had admission counts of under 1,000,000; eight between 1,000,000, and 1,500,000; seven between 1,500,000 and 2,500,000; seven between 2,500,000 and 3,500,000. The white count was under 5,000 in only fourteen of the patients, rather contrary to the accepted idea that there is very generally a leukopenia in this condition. The average hemoglobin percentage for the group was 41.4 per cent. The color index was high in all instances except two.

Icterus index estimation was done in only a few patients. Half of these had indices above 15 and the other half under 15. Negative Van den Bergh reaction occurred in six instances and a positive in five.

The mean corpuscular volume in those cases in which it was estimated varied from 121 to 92.6. In only two of this group of ten patients was the mean corpuscular volume under 100. The cell measurements by the Price-Jones procedure averaged 8.9 u, as contrasted with the normal 7.2 u. The normal figures for mean corpuscular volume range between 75 and 95 with an average of 85.

Result of Liver Therapy.—We have confined our treatment in recent years almost entirely to the use of liver extract, whole liver by mouth or the extract used hypodermically. We did not advocate liver hypodermically as a routine. It is pathetic always to see the patient with diabetes who has to take insulin by this route and while the pernicious anemia patients would not have to take liver as often as the diabetic patients would have to take insulin in this form, nevertheless it seems advisable to use

liver extract intramuscularly only in those cases in which for some reason or another they cannot take it by mouth. This latter statement applies to the patients who are extremely ill, to those it nauseates and to those who have diarrhea. Twenty-six patients in this group received liver; twenty-two improved, three died and one deserted before any improvement was noted. Of the three deaths one was in an elderly man who died a cerebral death shortly after admission to the hospital although he had evinced a most satisfactory reticulocyte response; another was in an elderly man who markedly improved hematologically and died from bronchopneumonia, and the third died in spite of the use of transfusion and liver extract a few days after coming into the ward. These three deaths occurred in patients over 80 years of age. In the one patient who deserted it was impossible to tell whether he had improved or not.

Other Forms of Therapy.—Ventriculin was used in a few cases; transfusions were resorted to at times but the main dependence was placed upon liver after it became known that liver had a nearly specific effect on pernicious anemia.

So much for the summary of the important features of our cases of pernicious anemia. I should now like to be more specific and recite briefly the histories of several patients that are of special interest.

CASE REPORTS

Case 12. This patient came in with an extremely severe anemia the red cell count being 615,000 per cu.mm., and hemoglobin 25 per cent. The patient was given chopped pancreas, liver extract, transfusion and the response of the reticulocytes was rapid. Four days after liver extract was given the reticulocytes increased to 16 per cent. Five days later it had fallen to 6 per cent. The total number of red cells in this patient doubled in the first week of treatment, of particular interest in showing the prompt and spectacular response to liver therapy in a patient with severe anemia. Invariably the rapidity and extent of the response is in direct relation to the severity of the anemia.

Case 25. This was the patient's first admission. On liver therapy the red count went from 1,000,000 to slightly under 3,000,000. The reticulocyte response reached its peak at the seventh day when it was 10 per cent and it had fallen gradually on the twenty-fifth day to 3 per cent and then on to normal. He was readmitted about one year later with amebiasis and the red count had fallen from 2,900,000 to 2,500,000. There was no reticulocyte response and no improvement in the anemia until the amebiasis was cured. Mean corpuscular volume in this patient was 107 and the volume per cent of packed red cells 33.2.

Case 27. This is a patient who has had numerous admissions to the hospital. She has a low grade of intelligence and refused to take liver extract in any form. Her anemia would improve slightly under dilute hydrochloric acid, a balanced diet and rest, but results were never satisfactory. Finally the liver extract for hypodermic use was put on the market and given to her intramuscularly. She had a prompt and satisfactory reticulocyte response with a rapid rise in her red blood count. She went home and did not follow liver therapy, returning in a period of some months with a severe anemia, the red blood count being under 500,000. She was given six transfusions repeated every second or third day and liver extract intramuscularly. She was admitted in coma and after the second transfusion showed a decided improvement which continued until one week after the last transfusion when she commenced to have fever which was attributed to two ugly bed sores over the coccyx and the right buttock. Fever continued with high exacerbations for a period of some weeks. In the meantime her anemia of red blood cells did not progress downward but her hemoglobin did go down and she developed an almost dead-white coloration of the sclera, and marked pallor of the mucous membranes. Finally it was thought she might have malaria although she had been in a screened ward for some weeks prior to the development of the fever. It was found she had estivo-autumnal malaria which yielded promptly to quinine and plasmochin and which was undoubtedly due to transference of the plasmodia to her from one of the donors when she was transfused. With the improvement and cure of the malaria she started to pick up immediately but still continued to have a low hemoglobin. Iron was then added to her liver therapy and the hemoglobin has gone up steadily, together with the red blood count.

This case is of particular interest because apparently the liver therapy was able to prevent the development or exaggeration of the anemia of the red blood count but there was a marked diminution in the amount of hemoglobin per 100 c.c. of blood. In spite of the severe malarial infection she in general did not go downhill but held her own. After the malaria was conquered it was obvious she had exhausted her supply of iron and that unlike the average patient with pernicious anemia whose tissues, notably the liver, are loaded with iron, she was lacking in this element. When iron was added to her regular diet the improvement became absolutely and completely remarkable.

This case and the case of amebiasis are of interest because they show that parasitic infections of an individual, such as ameba or malaria plasmodia, defeat the good effects of liver therapy which seems to have very slight effect in the presence of these complications. The patient, Case 27, is particularly interesting because she developed a very pronounced whitish pallor explained by the marked reduction in the amount of hemoglobin. Her iron store was thoroughly exhausted by the concomitant malarial infestation.

CASE REPORTS

Case 28. Mrs. U. M., aged 66 years, had the characteristic symptoms of pernicious anemia four years prior to admission to the hospital. These symptoms

had twice required hospitalization at which time liver therapy was employed with most satisfactory results. The physical examination of this woman was in no wise unusual but she did have after histamine injection a free hydrochloric acid of 6 and a total acidity of 25. We were anxious to see if she would show any response to raw pancreas and she was given 300 grams of this particular parenchymatous organ. We were interested in the use of pancreas because of the splendid results we have had with it in several cases of macrocytic anemia of sprue. Mrs. M. was given pancreas for thirteen days with a slight reticulocyte response but not as pronounced as is observed with liver. However, it should be noted that liver extract was started on the 29th of April, thirteen days after admission, and the maximum response was only slightly above that of the response induced by the pancreas. This anemia was complicated by a rather severe diarrhea so that this patient can hardly be called one fairly treated with pancreas.

Table 1

4-13-32		4-15-32	
RBC 1,300,000		RBC 1,385,000	
Hgb	5.1 grams (35.4%)	Hgb	6.5 grams (34.34%)
Hematocrit	18.34	Hematocrit	22.5
M. C. V.	136	M. C. V.	133
C. I.	1.36	C. I.	1.30
5-10-32		5-17-32	
RBC 1,560,000		RBC 2,510,000	
M. C. V.	123	Hgb	6 grams (34%)
C. I.	1.24	Hematocrit	28
		M. C. V.	119
		C. I.	1.20

RETICULOCYTES

4-15-32	4-16-32	4-17-32	4-18-32	4-19-32	4-20-32	4-21-32
0.7%	0.8%	1.0%	1.3%	2.7%	2.3%	2.7%
4-22-32	4-23-32	4-24-32	4-25-32	4-26-32	4-27-32	4-28-32
3.0%	2.8%	2.7%	2.3%	2.0%	1.8%	1.7%
4-29-32	4-30-32	5-1-32	5-2-32	5-3-32	5-4-32	5-5-32
1.7%	1.8%	1.7%	1.8%	1.7%	1.5%	1.1%
5-6-32	5-7-32	5-8-32	5-9-32	5-10-32		
1.9%	3.2%	4%	3.8%	2%		

Case 31. This patient is of interest because of his advanced age; 85 years had elapsed before he developed the symptoms of pernicious anemia. He had all the classical features of the disease—red tongue, a red cell count which was 700,000 on admission to the hospital, hemoglobin 17.25 per cent, color index 1.23 and mean corpuscular volume 102. There was no free hydrochloric acid after histamine stimulation. Two cc. of liver extract were given parenterally up until 48 hours before his death which took place a little over a month after his admission to the hospital. Up until the time he developed bronchopneumonia his red cell count had gone up to 1,600,000. At this time he had a color index of 1.2, a mean corpuscular volume of 118 and a very definite reticulocyte response. Eleven days after liver extract had been started color index was up to 5.7 per cent, three days after it was 7 per cent and then gradually fell to 4 per cent. His hematological improvement was marked but he had the misfortune to develop bronchopneumonia from which he promptly succumbed. This patient, incidentally, is the oldest patient that we have been able to discover in literature who had developed pernicious anemia. Such cases must frequently occur, however, as we have a second case in our group who was 84 years of age when he came into the ward.

OTHER FORMS OF RECOMMENDED TREATMENT

In the treatment of pernicious anemia we have not mentioned the use of liver extract intravenously as suggested by Isaacs, Sturgis, Goldhamer and Bethell.[5] This is a most suggestive piece of work whereby it is possible to bring up the blood count to normal and then to maintain such a count by monthly injections of from 100 to 125 grams of liver. We have had experience with the use of ventriculin and have found it to be as satisfactory as liver. We have not used addisin, a preparation of concentrated gastric juice prepared at the suggestion of Morris.

The aplastic type of anemia has not been discussed because of its varied etiology and because if it is a true aplastic type of anemia treatment is ineffectual.

SPRUE

Recent studies in the pathogenesis of sprue by Castle[6] indicate that the macrocytic anemia which resembles so closely that of pernicious anemia is dependent upon an inadequate amount of the extrinsic factor in the dietary of those individuals who develop this disease. The condition resembles so closely pernicious anemia that there are some who hold that it is merely another expression of this disease rather than a true specific entity. We have not had a great deal of experience in the treatment of sprue but would like to recite briefly our experiences with two patients who had this disease.

CASE REPORTS

L. D. This patient at one time was a big, strong husky male fireman who as a result of the diarrhea had wasted away to almost nothing. Various therapeutic measures were tried with this patient until finally raw pancreas and ripe bananas were made the sole constituents of his diet. The improvement was spectacular. Within a period of a year he had more than doubled his weight, diarrhea had ceased entirely, his blood count had returned to normal and has remained there. At the present time, some seven years later, the body weight is over 250 pounds.

A second case, that of M. S., a little woman, was likewise most dramatic. This patient weighed 55 pounds when she was in the ward, had an intense diarrhea and a typical macrocytic anemia. Gradually the diarrhea subsided when we could get her to take from 12 to 18 bananas a day. It was difficult to get pancreas for her so we substituted liver extract. In a period of three months she was able to leave the hospital and at the present time she has almost tripled her hospital weight and her count is: Erythrocytes 4,045,000, leukocytes 5,750, hemoglobin 65.5 per cent, color index 0.81, and mean corpuscular volume 87. The stained specimen of blood shows a fair number of macrocytes. It is obvious that this patient's diet, composed almost entirely of bananas, does not supply her with sufficient iron.

The beneficial effects of the liver in the one instance and the pancreas in the other on the anemia cannot be gainsaid. It was the result of experiences in the first man that

lead us in a few instances to substitute pancreas raw or slightly cooked for liver in the treatment of pernicious anemia. The results on the whole have not been as satisfactory as with liver. The influence of the bananas on sprue must likewise be more or less specific, at least upon the diarrhea. Both of these patients had recurrences of the diarrhea when they would give up the bananas and take some other form of carbohydrate.

IDIOPATHIC HYPOCHROMIC (MICROCYTIC) ANEMIA

The idiopathic hypochromic type of anemia is a recent development in the study of hematology. This particular type of anemia is characterized by an absence of free hydrochloric acid in middle aged women who have a microcytic type of red cell. These people respond to iron as magnificently as does the young girl with chlorosis. In many ways this condition resembles chlorosis except for its occurrence in the middle aged and for the absence of free hydrochloric acid in the gastric contents. Wintrobe and Beebe[7] have written a complete review and discussion of this type of anemia.

Iron must be given to these patients in large doses. This is exemplified by the following case.

CASE REPORT

Miss A. M., single, aged 49 years, came into the Hutchinson Clinic with the usual symptoms associated with anemia. She was found to have a marked reduction of hemoglobin which was 45 per cent, red blood count was 3,380,000, color index 0.66 with a very low mean corpuscular volume. She was started out on small doses of iron ammonium citrate and her blood count went down to 2,500,000 red cells with 35 per cent hemoglobin. The dose of iron ammonium citrate in this instance was a gram three times a day. This was then doubled and subsequently tripled. Under the influence of the large doses of iron, 9 grams a day, her blood counts rapidly improved and a month after forced iron therapy the red count had gone up to 5,265,000, hemoglobin 58.6 per cent, color index 0.56, and the mean corpuscular volume 55.4. This patient followed the course that is to be anticipated in these cases. After the preliminary rise in red cells they fell to slightly under 5,000,000 but the hemoglobin continued steadily upward. The patient incidentally had a slight reticulocyte response with large doses of iron, her skein cell percentage being 1.3. This patient did not show concavity of the finger nails, koilonychia, noted in about 30 per cent of the patients suffering from this type of anemia.

NORMOCYTIC ANEMIA

This is the type of anemia which occurs after hemorrhage. Internal hemorrhage is the most interesting type that is observed by the internist. It is well known that with the cessation of the hemorrhage there is a relatively rapid return of the blood count to normal. The following case shows the response that occurs after hemorrhage.

CASE REPORT

A. C., white male, aged 58, had a perforated gastric ulcer in 1915 with laparotomy 28 hours later. The symptoms returned in the summer of 1929 and a posterior gastro-enterostomy was done. In December, 1930, epigastric distress, nausea and vomiting reappeared. Hematemesis occurred on two or three occasions and was accompanied by tarry stools. On December 30, 1930, the red blood count was 2,880,000; on January 13, 1931, 3,200,000. The patient was given six injections of iron and arsenic and given two Blaud's pills three times a day. On January 28, 1931, the count was 4,000,000; February 9, 1931, 4,700,000, with only 50 per cent hemoglobin. During the second week of December, 1931, hematemesis and tarry stools occurred for two or three days. The resulting anemia was severe and admission to the ward was necessary. On February 8, 1932, the count was 3,750,000 and hemoglobin 40 per cent. He was placed on Blaud's pills three times a day. Bleeding reappeared in April, 1932, and an exploratory laparotomy was done in July, 1932. No ulcer was found but a large mass of esophageal varicosities was discovered to account for the repeated severe hemorrhages. Severe hemorrhages occurred in October, 1932. The patient was given 120 grains of iron and ammonium citrate daily, starting October 27, 1932, with the following response.

Date	RBC	Hgb.	Reticulocytes
10-27-32	3,560,000	6 grams	0.4%
10-31-32	4,100,000	10 grams	3.1%
11- 2-32	4,750,000	12 grams	4.3%
11- 4-32	4,900,000	12 grams	3.8%
11- 7-32	5,190,000	13 grams	2.0%

DISCUSSION

We were particularly interested in the response of this man to large doses of iron and ammonium citrate in that it took nearly three weeks for the count to increase one and a half million red cells with iron and arsenic and Blaud's pills on a previous admission, whereas with very large doses of iron ammonium citrate the red count increased over one and a half million in a period of eleven days and the hemoglobin likewise more than doubled. The response of the reticulocytes showed a maximal outpouring of these cells six days after the iron was started, gradually falling until the red cells and hemoglobin approximately reached normal.

SIMPLE MICROCYTIC ANEMIA

This particular type of anemia is the most common type that is seen in everyday practice. It occurs in all types of chronic infections, chronic diseases or chronic intoxications as a result of poor hygienic conditions; nor must it be forgotten that a focus of infection is sometimes responsible for a microcytic type of anemia which can be cured promptly by removal of the focus that is

producing the symptoms. Another possible cause for this type of anemia is secondary and tertiary syphilis. Often it is combined with the depressing effects of the arsphenamines upon bone marrow so that the two conditions may produce a degree of anemia sufficiently high to mimic pernicious anemia. In chronic nephritis without hemorrhage the anemia apparently is the result of decreased blood formation as exemplified by the following case.

CASE REPORT

S. P. A colored woman 48 years of age was admitted to the hospital with anemia that developed as a result of chronic nephritis. Her blood pressure was 200/98, her red cell count was 3,050,000 with 4.4 grams hemoglobin. Mean corpuscular volume was only 65, mean corpuscular hemoglobin 14.7. Despite relatively small doses of iron which she received she had a reticulocyte response that reached a peak of 4.5 per cent. After being in the hospital for a month she was seen in the Hutchinson Clinic with a red count of 3,902,000. In spite of the reticulocyte response which was adequate with her degree of anemia, her red cells had not gone up to normal figures. The patient was given large doses of iron ammonium citrate and five weeks later had a red cell count of 4,500,000 and mean corpuscular volume of 68. Two weeks later the count had gone up to 5,725,000 with hemoglobin of 80 per cent and color index of 0.7. Her color index which previously had been 0.5 had materially improved concomitantly with the improvement in the red cell count.

This patient also represents an individual who had really splendid results from adequate iron therapy. Her kidney condition was not treated except for the general directions which are usually given for a person who has hypertension secondary to a nephritis.

THE ANEMIAS OF PREGNANCY

As Strauss[8] has pointed out, it is generally known that the anemia of pregnancy may be one of two types; first, either the hypochromic anemia which may depend upon dietary deficiency, gastric anacidity or some other factor which becomes active because of the demands of the fetus and which type of anemia yields readily to iron; or second, the macrocytic or so-called pernicious anemia of pregnancy presumably due to a temporary absence in the gastric juice of the specific intrinsic factor, absent in the gravid woman as it is in those patients who have pernicious anemia. It is presumed that after the completion of pregnancy this factor returns. Possibly in a few cases it may be that the lack of the extrinsic factor found in vitamin B_2 may be the agent responsible in turn for the pernicious type of anemia in pregnancy. The latter type of anemia can be controlled with liver extract. Usually it is necessary to supplement with iron.

An example of this former type of anemia may be illustrated by the following case.

CASE REPORT

Mrs. T. H., aged 42 years, last menstruated October, 1932. She was admitted to the hospital May 30, 1933, with a story that she had developed a marked anemia in a period of only about six weeks, judging from her symptoms and from her appearance. This was the twelfth pregnancy of this woman who had eleven children living and well. Her physical examination showed nothing of moment except pallor of the mucous membranes and the skin and the associated pregnancy. She had a precipitate delivery on the first of June without loss of an unusual amount of blood. Her anemia continued and she was transfused eight days later at which time the red cell count was 925,000 and color index was 0.8. She was transferred to our ward and 2 c.c. of liver extract given parenterally daily. Four days after starting the liver extract she had a reticulocyte response of 8 per cent. Her further recovery was relatively rapid. Her mean corpuscular volume averaged between 6 and 7; color index was 0.85. She had free hydrochloric acid in her gastric contents.

This patient is of interest because she represents a response to liver which is unusual in the microcytic type of anemia.

POLYCYTHEMIA VERA

This is another disease of the blood-forming organs which responds in most instances most satisfactorily to drug therapy. The reliability of phenylhydrazine hydrochloride in the treatment of polycythemia vera is well established as shown by the experiences of Giffen.[9] The drug may be continued over a long period of time safely, maintaining the blood count at normal on a carefully worked out maintenance dose (Stealy[10]). Treatment may be begun with a dose of 3 grains (0.2 gm.) daily and then continued with smaller doses, judging subsequent dosage by the increase in the number of leukocytes and drop in hemoglobin. A case illustrating the beneficial effects of this type of therapy is briefly recounted.

CASE REPORT

M. V., a middle aged woman, on account of dizziness and headaches resulting from a blood count of over 9,000,000 red cells, was virtually a blood cripple. With the institution of phenylhydrazine hydrochloride her blood count was brought down to normal in a period of about three weeks. It was possible to maintain the erythrocytes at a normal level with a dose of 0.1 gm. of phenylhydrazine hydrochloride once or twice a week.

HEMOPHILIA

The treatment of hemophilia has been stimulated recently by some publications which have to do with the giving of ovarian extract, theelin or one of the similar hor-

mones derived from the female ovary. The basis of this therapy is that the hemophiliac, always a male, lacks something which should be present in his blood and found in the urine, and which is derived from the female sex hormones. Lacking this hormone hemophilia may develop. We have not had the opportunity of treating a patient with hemophilia with ovarian extract but we have had in the last few years two cases of hemophilia which we have had the opportunity of treating successfully with transfusion and locally with cephalin and similar preparations.

AGRANULOCYTIC ANGINA

The results of nucleotide therapy in 69 cases of agranulocytic angina and malignant neutropenia have been reported by Jackson, Parker and Taylor.[11] They report that a few young polymorphonuclear neutrophils may appear within 48 hours after treatment is started but a pronounced improvement does not occur until the fourth or fifth day of treatment.

CASE REPORT

B. P., white male, aged 57, was admitted to the Charity Hospital August 8, 1932, with the complaint of sore throat for three days. The following day the throat was still more painful and fever appeared. He has never had any severe illnesses in the past. The physical examination showed an elderly male, acutely ill and slightly irrational. Examination of the head was unimportant except for the mouth which showed a bad hygienic state. The tonsils were enlarged and reddened. The left tonsil was partly covered by a definitely ulcerative necrotic lesion. The peritonsillar tissue and uvula were red and edematous. The glands of the neck were enlarged, hard and tender.

On admission to the ward the patient had temperature of 102.8° and for the next six days the temperature remained up between 101° and 104°. The pulse rate at no time was unduly rapid. Forty-eight hours after admission the ulceronecrotic lesion had affected also the right tonsil and there was a small area on the uvula. The buccal mucosa membrane was never involved. On the tenth he was given mild stimulating doses of roentgen ray over the flat bones.

The first injection of nucleotide, 0.7 gram, was given intravenously diluted with 150 c.c. of normal saline the morning of the fourth day after admission; 0.7 gram was given intramuscularly about six hours later. The same amount, 0.7 gram, was given intramuscularly twice a day for the next four days. The glands of the neck were incised four days after admission and cultures from this showed no growth.

The daily blood counts on this patient for a period of twenty days showed the following: Three days after the patient was admitted the white blood count was 850 with 1 per cent polymorphonuclear cells; two days later it had risen to 2270 with 36 per cent polymorphonuclears; three days after this they had gone to 16,400 with 69 per cent polymorphonuclears; by nine days the count had gone to 10,900 with 83 per cent polymorphonuclear cells and for several days before his discharge the count was normal. When the count was high the percentage of small mononuclears was low and there was a marked outpouring of immature granulocytes. On the day when the count was the highest there were 2 per cent myeloblasts, 15 per cent myelocytes and 15 per cent of metamyelocytes. The small mononuclears were only 7 per cent, polymorphonuclears 61 per cent. The immature cells disappeared by the time the leukocyte count returned to normal figures.

This represents the response to an agent which stimulates agranulocytogenesis. Roentgen ray had been employed before the pentnucleotide was given. It may have had some stimulating effect on the bone marrow. We do not recommend roentgen ray therapy for two reasons: First, there is always the danger of its having a depressing effect on the marrow, and second, it is a potent agent which seems to have almost a specific destructive action on granulocytes.

This patient has been seen regularly since discharged from the hospital. There has been no deviation since then from the normal total white count nor the differential formula.

LEUKEMIA

We include the treatment of leukemia in these notes because the management of these cases with irradiation is sufficiently valuable to warrant some discussion. There is no treatment that approaches the specificity of liver in pernicious anemia or of splenectomy in purpura; but nevertheless in the chronic types of myeloid leukemia it is possible to carry the patient along for many years, up and about and performing the usual occupations of his daily life. The treatment of acute leukemia is absolutely worthless. There is nothing in the world you can do for these patients. Illustrative of the rapidity with which death may take place, we might say that we have seen a child dead within two weeks after the onset of the concomitant angina of acute leukemia. Acute fulminating leukemia rarely occurs in the adult but sometimes the course of the condition may be extremely rapid downhill as may be seen by the following case.

CASE REPORT

J. W. P., a man of 47, was seen on April 10, 1932, with a leukocyte count of 22,500, of which 76 per cent were lymphocytes. He had a red cell count of 1,450,000 and hemoglobin was 4.5 grams (31 per cent). The liver was enlarged as was the spleen. This man dated his symptoms from the first of February. He died on the 23rd of April, progressing downward steadily without the slightest amelioration of his symptoms.

In chronic myeloid leukemia the beneficial effects of roentgen ray and radium may be demonstrated by another case.

CASE REPORT

The symptoms of G. C. W. developed in 1919 and when the diagnosis was made the white cells numbered 325,000. This young man was a very intelligent engineer. He followed his case carefully until the time of his death, keeping a chart which ultimately became huge, of all his leukocyte counts before and after roentgen ray. The treatment he handled very largely himself. The usual procedure was for him to begin to feel malaise and definite sensations of ill health. Invariably he could tell that his leukocyte count had gone up when he had these particular subjective phenomena. The symptoms would appear when the leukocytes would go up to about 75,000. He would then proceed with irradiation, bringing the count down to about 20,000 and then go along for a period of six weeks to three months without further radium therapy. He died some eleven years after the onset of the myeloid leukemia with an intercurrent infection.

It must be borne in mind that leukemia frequently is an extremely chronic disease.

CASE REPORT

We saw recently a patient, Mrs. R. R., who more or less accidentally discovered she had leukemia last May. She was found to have a slightly enlarged spleen and a leukocyte count at this time of 150,000 white cells of which 24.5 per cent were myelocytes. She was given roentgen ray treatment to her spleen and within a period of twelve days her leukocyte count had fallen to 5,800. That count was made June 12, 1933. In the meantime she went along with a maintenance of this low count for months. In October the leukocyte count was 7,500, in December 10,750, and in the middle of February it had risen to 20,500, and when seen the first of March it had gone up to 35,000, without any anemia of the red cells or hemoglobin. She had a rather remarkable blood picture at this time. Eighty-three per cent of the cells were classified as polymorphonuclears, 12 per cent neutrophilic myelocytes, 3 per cent as basophilic myelocytes and 2 per cent eosinophilic myelocytes. Roentgen ray or radium were not recommended at this time as it is quite distinctly our feeling that it is inadvisable to employ radium therapy unless the leukocyte count is between 60,000 and 75,000.

We are distinctly of the opinion that irradiation, no matter how given, should not reduce the leukocytes lower than 20,000 per cubic millimeter. The dangers of radium and radiation depend largely upon the effect that this potent therapeutic agent has on the bone marrow. While a count of 5,000 to 6,000 leukocytes is reassuring to the patient, he is not aware that the marrow may be thrown out of commission by such strenuous treatment and a severe anemia develop. Always the treatment should be especially cautious when there is a pronounced anemia and when the blood platelets are considerably reduced in number. The treatment is likewise dangerous when there is an unusually large number of young myelocytes. Under these circumstances blood transfusions are probably the most satisfactory form of therapy that can be employed or made use of. The treatment of chronic myeloid leukemia with irradiation is more satisfactory than the chronic lymphatic type.

Chronic lymphatic leukemia on the whole is, in most instances, likely to be an extremely chronic condition. We believe that patients with this type of leukemia are treated with more satisfaction than are they with the other types of leukemia and that in spite of the fact that the treatment with roentgen ray is not as satisfactory as in the chronic myeloid type. As an example of the essential chronicity of the condition and the improvement that may be obtained by treatment, the following case is an excellent illustration.

CASE REPORT

M. N. had been sick for two years prior to his admission to the hospital. Ease of tiring was the initial symptom and it was followed by the usual symptoms that are associated with anemia. He was told about this time by a doctor who examined him that he had too many white blood cells. At the same time enlargement of the spleen was noted. The patient was admitted to the hospital where it was found that he had a general adenopathy, an enlarged liver extending 5 cm. below the costal margin and a spleen which extended on the opposite side 15 cm. down into the abdomen. The blood count at this time showed a total white blood count of 292,500, red blood count of slightly under 3,000,000 and hemoglobin 65 per cent. Small mononuclears made up 97 per cent of the total white cells. Radium was applied over the spleen for fifteen hours, the dosage being 150 milligrams. Three days later the white blood count was 177,000, two days later it was 44,000, the following day it was 11,500. The differential formula, however, remained only slightly changed, the small mononuclears being 95 per cent and the polys 3 per cent. The patient returned to the hospital five months later at which time the total count was 57,500, small mononuclears 92 per cent and neutrophils 4 per cent. He received radium which effected a marked drop in the white blood count and he was discharged. He returned again in five months still with a slight degree of anemia and marked increase in the number of white blood cells. They had jumped up to 260,000 of which 98 per cent were small mononuclears. He was treated, left the hospital and six months later was again admitted without a very pronounced increase in the number of white blood cells, they being 53,000 of which 90 per cent were small mononuclears. Radium was applied on that date and the next day the count had fallen to 10,000 of which 88 per cent were small mononuclears. The spleen on this last admission extended down to the umbilicus. The liver was barely palpable and the lymph glands were universally enlarged. This patient was discharged from the hospital April 5, 1933, and died April 17, 1933.

IDIOPATHIC THROMBOCYTOPENIC PURPURA

The interesting symptom of purpura is an extremely common one. Symptomatic purpura is seen in a variety of conditions and is almost an invariable concomitant of any of

the severe blood dyscrasias. It may be of either one of two types: The first associated with a thrombopenia and the second without a thrombopenia. Many of the symptomatic or secondary types of purpura as occur in the blood dyscrasias are associated with a marked reduction in the thrombocytes. The non-thrombocytic form is more common than the other and the procedures which help it are not always satisfactory.

The essential thrombocytopenia purpura is a condition apparently coming on without any obvious or demonstrable cause and is seen usually in younger people. The hemorrhages may occur under the skin, in organs, from mucous membranes and in fact anywhere in the body. The important hematologic finding is failure of the clot to retract although the coagulation time is normal.

Essential thrombocytopenia is a relatively rare condition. We have records of only three cases as seen in the hospital wards but we have seen quite a few in the outpatient department when the hemorrhages have not been severe enough to require hospitalization. An example is the following case.

CASE REPORT

L. P., a 12 year old boy, entered the hospital bleeding from the gums, with hematuria and with purpuric lesions scattered over the body, including the tongue. These symptoms were not associated with a particularly severe anemia. Apparently blood loss had not been great, the red cells decreasing 600,000 from normal figures in the six days of his disease. The leukocytes were not increased, the differential formula was unchanged and the platelet count was down as low as 225 six days after he had been in the hospital. Coagulation time was two minutes but bleeding time at the time the platelets were so low was one hour and ten minutes. In the hopes of stimulating the production of platelets by the bone marrow this boy was given repeated small transfusions. He was given on the 14th of the month pentnucleotide for the same purpose, to stimulate platelet formation in the marrow. As a result of this therapy the improvement was marked. He was discharged about three weeks after admission to the hospital apparently entirely recovered. Suggestive is the result of the treatment by pentnucleotide.

Splenectomy is the therapeutic measure which should be considered in every case of purpura of the thrombocytopenic type. The magnificent results are exemplified by a patient seen seven years ago.

CASE REPORT

A. B., developed without any apparent reason extensive purpuric eruptions on the greater part of the body. This was associated with bleeding from the oral cavity and from the intestinal tract. The blood count went down rapidly and the man apparently was in serious condition. Splenectomy was advised although nowadays we would hesitate to advocate this procedure in the acute severe cases without first trying the effect of repeated transfusions. The spleen was removed with a considerable amount of difficulty. Immediately following splenectomy the bleeding stopped permanently. The results were so spectacular that at the operation as soon as the splenic pedicle was ligated literally the bleeding from the cut cutaneous vessels ceased. As happens in this condition, in spite of the cessation of hemorrhage, the platelets do not increase in number but the removal of the spleen does cause hemorrhages to stop. In order to evaluate depressing the spleen without excision we have tried in several cases roentgen ray therapy over the organ without satisfactory results.

SPLENIC ANEMIA (BANTI'S DISEASE)

The occurrence of enlargement of the spleen, progressive anemia and subsequently the develoment of cirrhosis of the liver was first described by Banti whose name is used as an eponym for the disease, although sometimes it is called splenic anemia. It is an interesting disease which at times is classified under diseases of the blood and again under diseases of the spleen. In this condition the first stage is characterized by enlargement of the spleen which may persist for years and then is followed by the development of a moderate degree of anemia. The first two stages of the disease are of interest in conjunction with our present discussion. The third stage, cirrhosis of the liver with ascites, is that in which the condition cannot be benefited by treatment to any great degree. During the second stage there is a moderately advanced anemia of the microcytic type associated with leukopenia.

We have had the opportunity of studying some seven cases of Banti's disease. Most of these patients were seen in the late stages of the disease and some of them had positive Wassermanns, an interesting observation as syphilis is sometimes considered to be an etiologic factor responsible for the disease. Incidentally, it is recommended at times, even when there is a negative serology, that the patients with Banti's disease be given a course of antisyphilitic treatment.

In all of our cases except one the red count was under 3,000,000, with a corresponding reduction in the amount of hemoglobin; but as stated, these patients were too far advanced to have very much effect from any therapy which we might employ. Satisfactory results were obtained in one case who was put on active antisyphilitic treatment in view of the strongly positive Wassermann. He left the hospital considerably

improved but how long that improvement lasted we cannot say.

One of us had the opportunity of seeing a case of Banti's disease some fifteen years ago which was diagnosed before the cirrhotic changes had occurred. Splenectomy, an operation which has proved definitely curative in the early stages of the disease, was performed. This man, when seen some twelve years later, was active, healthy and to all intents and purposes well.

Splenectomy is sometimes advocated even in the ascitic stage. At that time, however, the mortality is at least 25 per cent so that it requires considerable courage to recommend this particular procedure.

CHRONIC HEMOLYTIC JAUNDICE

In this condition we have not had the opportunity of seeing the result of splenectomy but we will mention it merely to point out that observers are very generally united in their approval of splenectomy to relieve this condition. The results of splenectomy are remarkable and apparently a complete cure is effected.

DISCUSSION

We have not discussed sickle cell anemia. We have not considered infectious mononucleosis, we have not dealt with the anemias of childhood nor aplastic anemia. We have avoided discussion of these particular syndromes because we have either not seen the cases or else because treatment is of comparatively little value.

We should like to accentuate the importance of general measures in the treatment of any type of blood disorder. The response to such simple procedures as a proper dietary rich in vitamins, rest and so on, in the treatment of practically any type of anemia hardly seems to need accentuation, nor does the removal of infectious foci, disturbing home conditions or what not, need to be stressed. Before closing we would like to say a word or two about transfusion. This therapeutic measure is of such extreme importance that it is advisable to carry it out in the treatment of all severe anemias when they are first observed. The procedure of course is not danger-free but the restoration of blood volume and the addition of red corpuscles to the individual's blood can be accomplished more promptly, more efficiently and more successfully by this method than by any other. Occasionally untoward complications do occur and very rarely does such a thing happen as happened in one of our patients; namely, the transmission of malaria (or syphilis) from a donor who was not thought to have this condition. We wish to stress particularly the importance of giving comparatively small quantities of blood in anemias not due to blood loss. With marked blood loss from severe hemorrhage a large transfusion to restore blood volume, always given slowly, is indicated; but in the anemias that depend upon an ineffective marrow small transfusions of 250 to 400 c.c. of blood repeated every third or fourth day act as a definite stimulant to the bone marrow. In hemorrhagic conditions due to diminution or lack of certain constituents of the blood, the blood from the transfused individual will supply for the time being these elements so that in hemophilia and purpura and hemorrhagic diseases of the newborn this method of procedure is life-saving.

SUMMARY AND CONCLUSIONS

We have presented a series of blood disorders in which there are definite measures to relieve such conditions. We have indicated first, that liver therapy is practically specific in the treatment of macrocytic anemias; second, that iron in large dosage is likewise almost a specific in the treatment of microcytic types of anemia; third, that splenectomy is of extreme value in certain of the blood dyscrasias, and fourth, that pentnucleotide represents a very definite advance in the therapy of agranulocytosis.

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PATHOLOGY OF CARCINOMA OF THE BREAST

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In the relatively short period of time allotted I shall consider only the phases of pathology of malignancy of the breast which I consider to be of aid in giving the patient with cancer of the breast better service. I shall endeavor to evaluate these phases. I shall discuss and illustrate gross and histologic features from the standpoint of diagnosis and emphasize gross findings in particular in order to formulate a basis as to why certain clinical signs are present in carcinoma of the breast. "Early carcinoma of the breast" shall be emphasized. So-called "precancerous" changes will not be considered in detail, but only in so far as they seem significant in establishing a basis for the gross and histologic findings in carcinoma. The grading of breast carcinoma and histological features of radiosensitivity shall be discussed.

Before doing this, we must acquaint ourselves with the anatomy of the mammary gland. I shall consider the female breast only, not on account of unimportance of cancer of the male breast but merely on account of confining subject matter. The mammary gland is a skin appendage its milk ducts being hypertrophied and glorified sweat glands. It is divided into lobes by bands and sheets of fibrous tissue. It has a rich fascial and lymphatic connection with the skin overlying it. Its fascial envelope is connected with that of the pectoralis major and minor muscles underlying it. The mammary gland may extend to the axilla or the lowermost axillary lymph nodes may be found at the upper edge of the mammary gland.

A large number of the glands making up the glandular portion of the breast have their exits through ducts at the nipple. They are capable of and do secrete casein, fat and sugar. This is an acquired function (on account of which) these glands have developed an intimate association with blood vessels. We must realize then that a continual growing and shrinking is taking place in this glandular epithelium with each menstrual period, childbirth and lactation from the period of puberty to menopause, at which time shrinking is the predominant change. One can say the female breast is seldom at rest from the period of puberty to menopause, and perhaps its most normal state is commonly at puberty. From the time of puberty cysts are formed in the breast. We call this change, when definitely aggravated, chronic cystic mastitis; perhaps it would be better to call it chronic cystic disease, because an inflammatory reaction may not be present and it seems doubtful that inflammation is of great significance.

Cystic disease then dates from puberty and in the pathological laboratory we see it as a localized area in tissue which has been removed from the breast, or as scattered areas throughout the whole breast which has been removed. Then there are those many cases which have not been explored because careful clinical examination has not revealed areas of induration nor other signs of malignancy, but only those of cystic disease. Local rest or support have caused these cystic masses to disappear within a reasonable period of time. These, in which the whole breast has been removed for chronic cystic disease, present many shot-like masses or many spots of induration with usually one or some times more areas of pronounced induration. These indurated areas call for most careful consideration. They occur in greater part in women beyond the age of 35 years. What are these dominating areas made up of? They are: a cyst (cysts varying in size from pinhead to 3 cm. or more); fibro-epithelial growths; cancer; syphilis, tuberculosis, or combinations of some of these conditions. In these breasts with induration the clinical diagnosis is not definite and they are explored for the purpose of gross study and frozen section; either the whole mass, lobule of breast, or piece of tumor is removed for this study depending upon the condition in the particular case. At this point let me emphasize the factor of normal as applied to the female breast; this normal is a clinical appreciation; it is an appreciation of normal for age levels or state of physiologic activity of the breast. Induration or indurated thickenings is the paramount factor in determining the deflection from this normal that so frequently demands surgical exploration.

Upon examination of this tissue that has been removed we note that these cysts are filled with clear, turbid, viscid or jellied fluid; the walls of these cysts are made up of glistening, fibrous or myxomatous tissue; there may be areas of caseation, necrosis, or organized hemorrhage. The characteristic of carcinoma in these or any other areas is that there is present an area or areas woody hard in consistency, opaque in color, and such areas appear shrunken and contracted. If larger cysts are involved in this change this tissue will be noted in the cyst wall, or in the immediate zone about them. Cancer of the breast may be circumscribed but usu-

ally not encapsulated; we do not see them early enough for that. We have here a group of cases in which cancer and chronic cystic disease are found associated. In this group we have also those cases in which cancer cannot be differentiated from chronic cystic disease clinically. It is in this group of cases wherein lies the 2 to 5 per cent which Bevan, Wood and others state that frozen section is necessary for diagnosis; and let me add, that paraffin section from various areas is necessary in some of them in order to establish the presence or absence of carcinoma. It is in these breasts that the tissue is not definitely woody hard, contracted and opaque, nor is it definitely fibrous, not contracted and glistening. There are a number of classifications of chronic cystic disease, or we might say, attempted subdivisions, such as productive, nonproductive, etc., but suffice it to note that histologically we have desquamation of lining cells of ducts, papillary outgrowths into ducts or cysts, and foci of true carcinoma, and that our criterion of this true carcinoma is the diffuse proliferation of epithelial cells varying in morphology, with hyperchromatism of nuclei.

As to the fibro-epithelial growths, they include fibroma, fibro-adenoma, adenofibroma, cystadenoma, etc. Our criterion of gross findings still holds good, and we must examine the edges, the tissue around the edges, as well as the masses themselves for these changes; i. e., the tendency to woody hardness, opacity, loss of sheen, and presence of shrinking or contracture in carcinoma as compared to normal tissue.

Retraction of nipple, orange peel appearance of skin, or fixation of localized area of tissue are important clinical signs; and at this time let me emphasize the pathologic change in the breast that accounts for these findings. These are not early signs, or signs of early carcinoma however; it means that this woody hard contracting area of carcinoma by a process of infiltration has pulled into itself tubules and connective tissue bands which extend to the nipple or area of skin and they are securely fastened into this mass of carcinomatous tissue. The loss of elasticity of the lactiferous tubules may be determined by the loss of elastic attachment of the nipple and is accounted for on the same basis.

I make a histologic diagnosis of "adenocarcinoma" in all carcinomata of the breast, except in Paget's disease or squamous cell carcinoma of the nipple. I attempted to make a diagnosis of squamous cell carcinoma of the breast with axillary lymph node metastasis some few months ago, but this represents one of those cases of squamous anaplasia of an adenocarcinoma where adenomatous structure was hard to find. It occurs in varying degree in about 3 to 5 per cent of cases, and it is interesting that most observers report a uniformly fatal prognosis in this group. In early stages one can differentiate between acinar and duct carcinomata, but it is only in the occasional case a whole area of duct and tubule is not involved.

Familiarity with gross anatomical diagnostic criteria is of more importance in dealing with mammary tumors than in practically any other field of surgery. As has been said, frozen section is necessary in selected cases provided one is familiar with these gross findings. A single, very hard nodule with restricted mobility is usually carcinoma. Single or multiple nodules of carcinoma associated with chronic cystic disease give gross characteristics of carcinoma on cut section. The cicatricial or contracted nature of the nodule, presence of opacity, usually as a well defined central area surrounded by fine strands of connective tissue, is typical. Yellowish streaks and points among translucent connective tissue occur only in carcinoma. Opacity is a most valuable guide in selecting areas suspicious of carcinoma in chronic cystic disease.

Leaving out squamous cell carcinoma of the skin, Paget's disease of the nipple, and sarcoma of the breast, which comprise not more than 5 per cent of malignant disease of the breast, I feel strongly, for reasons stated, that we should consider all other tumors as adenocarcinoma and devote our studies on various histological features of this variety of growth. Whether they arise from the cyst lining in or about an adenoma or from duct lining is of little importance except that we see the great majority of cancers of the breast in the later stages when the duct, cyst and adenomatous tissue are all involved. In our series at Barnard it is only in about 3 per cent of cases that the relationship of duct or cyst can be made out. These represent then, early *carcinomata*.

Bevan and Wood agree that 95 to 98 per cent of tumors of the breast can be differentiated whether benign or malignant by gross section; however, when we consider this we must keep in mind that this represents the experience of men who have handled much of this material. As we see a greater number of early tumors of the breast this percentage will become less and less and the percentage of cases requiring frozen section should become greater. As Dr. Leighton will point out to you, the clinical and gross findings will be suggestive, but not

definite in these cases. They are the cases which represent greater hopefulness in eradicating the disease if it is present. The frozen section then becomes another link in this chain of evidence and it may be necessary to evaluate all of these factors carefully in order to determine the type or extent of the operative procedure. Then too, in a certain number of cases it may be necessary to await further evidence as obtained by paraffin section, and this from various pieces of tissue before a definite diagnosis may be made. It is this kind of study which has stimulated the belief that breasts should be examined clinically at frequent intervals from puberty to menopause, feeling that such a procedure is the only one whereby early carcinoma will be recognized with greater frequency.

As to chronic cystic disease, I agree with Smith of Boston that there is a constantly associated relationship in the same breast between malignant disease and chronic cystic disease. We are not warranted, however, in saying any more than that this relationship exists.

Now as to extension or spread of carcinoma, we have these various modes: (1) To the skin by way of the subcutaneous lymphatics, periductal lymphatics and direct extension; (2) in the breast by local evolution and dissemination of the tumor; (3) through lymphatics—first chain in axilla, then supraclavicular, then mediastinal, etc.; (4) round ligament to liver from umbilicus; (5) blood stream—any place—to bone, etc.

In a study of these factors you will learn the reason for wide skin margin, removal of pectoralis major and minor muscles, removal of fascia from axillary vein, and axillary lymph bearing tissue.

Since the work of Hanseman 40 years ago pathologists, surgical pathologists and clinicians have made various attempts to determine a relationship, if any, between the histologic make-up of breast carcinoma and its clinical progress. In these attempts three different schools have been created, viz.; the Anglo-American following Greenough; the German school following Hanseman and the French school following Delbet. In table 1 I have collected some of these data:

Table I

Alive and Traceable at 5 years	Grade I.	Grade II.	Grade III.
(Smith, Bartlett)	87.5%	42.2%	13.6%
(Ewing)	52.0%	33.0%	29.0%
(Greenough)	68.0%	33.0%	0%
(Haagensen)	80.0%	38.0%	14.0%
Average	72.0%	36.0%	14.0%

In this work there has been an agreement on the major histological features with exceptions such as those of Reimann. He is the most incredulous in attributing no significance to grading in determining prognosis; however, he based his data on cell size, mitosis and degeneration. Then we have MacCarthy, who based his deductions on hyalinization and fibrosis. Both Reimann's and MacCarthy's deductions were based on criteria of little value from this standpoint. For instance, Haagensen, in a series of 164 cases, studied various histological features from the standpoint of presence or absence in tumors which did or did not kill in 5 years. As a result of this valuable and comprehensive study, he decided important factors to consider were, (1) papillary character; (2) comedo character; (3) adenoid arrangement; (4) variation in size and shape of nuclei; (5) number of mitosis; (6) gelatinous degeneration. And of no significance were, size of nuclei, clear cells, fibrosis, hyalinization, lymphocytic infiltration and mucoid secretion. These are the bases of MacCarthy and Reimann's classification.

As to regional variation in structure in the same tumors, 11 per cent offered a handicap in Haagensen's series. In my series it was 5 to 8 per cent.

The majority of us use three grades of malignancy in dealing with adenocarcinoma as differing from four grades in squamous carcinoma. The placing of the tumors in the various grades is dependent on the histological features stated.

The grade of node metastasis compared to the tumor was the same in 71 per cent, higher in 19 per cent, and lower in 10 per cent of cases in Haagensen's series, an average is about 75 per cent in various series.

	Grade I.	Grade II.	Grade III.
Without Node Involvement			
5 year survivors	84%	64%	20%
With Node Involvement			
5 year survivors	76%	25%	11%

Much information has been accumulated from clinician, pathologist and radiologist concerning the reaction of various cells and tissues to radiation. A radiosensitive tumor is one which undergoes regression from a total dose of radiation sufficiently small to preserve the integrity of the tissues of the host. This combination of circumstances is resident in the tumor and the host. Degrees of radiosensitivity are recognized. Morphology of the tumor is only one factor in the estimation of radiosensitivity.

Studies on the biological activity of the tumor have been a guide in formulating

methods of irradiation, especially from the standpoints of duration as well as amount of radiation. Roentgen ray burns with their hideous sequllae are perhaps one of the impeti for divided dosages, but especially are these accidents responsible for the introduction of the technic for pluriportal administration. Morphology of the tumor is another factor governing radiosensitivity and much study has been made in establishing the histological features that make up this factor. Ewing's classification still stands as a very good guide for classifying tumors in decreasing order of radiosensitivity, as follows: (1) Lymphoma; (2) embryonal tumors; (3) cellular anaplastic tumors; (4) basal cell carcinoma; (5) adenoma and adenocarcinoma; (6) desmoplastic tumors, such as squamous cell carcinoma; (7) fibrosarcoma, osteosarcoma and neurosarcoma.

If we consider adenocarcinomas of the breast on the basis of radiosensitivity we see they fall between basal cell and desmoplastic tumors. Considered from the point of view of histological grading these same tumors; namely, tumors with marked cellular anaplasia and marked lymphomatous characteristics, fall into Grade III of malignancy. Thus in each class we must consider radiosensitivity per se and we cannot compare the radiosensitivity of Grade III adenocarcinoma with Grade IV squamous cell carcinoma.

Thus, in considering radiosensitivity from the histological standpoint and its relationship to grading, we must appreciate that radiosensitivity is particularly of importance in the grade III tumors. The 5 year cures by surgery in those tumors vary from 0 to 29 per cent, most authors quoting an average of 10 to 15 per cent. It is in the upper zone of this grade that we find lymphogenous, embryonal and other signs of anaplasia or undifferentiation. These are the radiosensitive tumors of the breast, but are not to be compared with embryonal carcinoma types of the nasopharynx. It is clear, that in addition to the factors we have already mentioned, the parent tissue in which the growth originates plays a role in radiosensitivity.

Other factors of importance are that anemic and cachectic individuals respond poorly; location of tumor in fat or bone makes it radioresistant; active infection interferes with successful radiation; highly vascular tumors vanish rapidly under radiation; successive treatments with inadequate doses cause an increased resistance; and recurrences in scar tissue following operative removal are also resistant. Dr. Ernst will discuss these factors from the radiological standpoint.

Thus, I have attempted to discuss some of the gross, histological and biological characteristics which are worrying us nowadays in giving them their particular place in the treatment of carcinoma of the female breast. I have not mentioned various features, particularly "sweat gland carcinoma" for the breast is a sweat gland, adenocarcinoma is gland carcinoma, so why confuse ourselves with a name and with a group of histological features which seem to be unimportant. I wish to emphasize that:

(1) Carcinoma of the breast from the cytological standpoint as seen in a cancer hospital and in a limited private practice is rarely seen in its early stages.

(2) Grading of carcinoma of the breast is of value in estimating prognosis and it along with determination of histologic radiosensitivity is an aid; it is a valuable criterion in establishing prognosis and in directing treatment.

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THE RADICAL OPERATION FOR CANCER OF THE BREAST

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The radical operation for cancer of the breast dates from the epoch making paper of Wm. S. Halsted, November 2, 1894. The principle enunciated at that time established not only the essential factors necessary for the eradication of cancer of the breast but paved the way for the more radical operations for cancer in other parts of the body, as in the radical operation for cancer of the lip, penis, tongue, uterus, etc. Halsted's work followed the researches of a large number of investigators in breast surgery.

Up to the year 1860 cancer was generally accepted as a constitutional disease and little could be hoped from surgery. That there were a few dissenters to this opinion may be found in the writing of Sir Astley Cooper and Velpeau.

Cooper in his anatomy of the mamma described scirrhous cancer as having roots running from the primary tumor and stated that the operation to be effective must include removing the roots.

Velpeau prior to 1860 reported a number of cancers of the breast living and well three to five years and longer following operation and with observation from his own experi-

ence showed unquestionably that cancer of the breast was curable.

To Sir Chas. Moore of London belongs the credit of first suggesting ideas for a radical operation in a paper published 1867 disputing the constitutional theory of cancer. He advocated removing the axillary glands and fat, the fascia covering the pectoral muscles and any part of the pectoral muscle involved together with the breast. He also taught the advisability of the removal of the tissues en masse without cutting across the infiltrating areas.

This remarkable paper was entirely ignored by English surgeons but stimulated continental surgeons, especially the Germans, and we find the names of Waldeyer, Heidenhain, Volkmann, Küster and others contributing to the growing knowledge of the disease.

Studies of the lymphatic drainage of the breast by Waldeyer, and the pathologic investigation of Heidenhain on the fascia and muscles proving the early involvement of fascia and muscles all contributed to the gradual evolution of the complete and truly radical operation 27 years later with which the names of Halsted, Willy Meyer, Volkmann and Sir W. Watson Cheyne will always be associated.

A comparison of the statistics prepared before Moore's paper and the intermediate period or evolutionary stage of the radical breast surgery with the era following the adoption of the radical operation of Halsted is both interesting and instructive.

In 1878 Billroth had only eight cures in 143 breast cancers, 5.6 per cent of cure. From 1867 to 1878 Winniwarter had 4.7 per cent of 3 year cures; 1874 to 1878 Volkmann had 11 per cent of 3 year cures; 1871 to 1885 Küster had 21 per cent of 3 year cures; 1877 to 1896 Schmidt had 18 per cent of 3 year cures; 1885 to 1893 Joerss had 28 per cent of 3 year cures; 1889 to 1894 Halsted had 45 per cent of 3 year cures; in 1904 Warren had 33 per cent of 3 year cures; in 1905 Willy Meyer had 35.8 per cent of 3 year cures; in 1907 Halsted had 38.3 per cent of 3 year cures; in 1908 Halsted had 35 per cent total cures to date.

From 1902 to 1912 Judd and Sistrunk had 44 per cent 3 year cures, 29 per cent 5 year cures; in 1912 Deaver had 34 per cent 3 year cures, 26 per cent 5 year cures; from 1911 to 1926 Greenough had 36.7 per cent 5 year cures; 1912 to 1928 Clopton had 40 per cent 5 year cures.

In the preradical period only 4 to 5 per cent were cured. In the evolutionary period with a better understanding of the disease and a more extensive operation there was a higher percentage of cures, and with the advent of the radical operation the five-year cures have risen to about 40 per cent.

A study of some 1500 breast tumors shows that 1113 patients with breast cancer were admitted to The Barnard Free Skin and Cancer Hospital up to January 1, 1934. Over 600 of these were operated upon by various types of operation including several shoulder girdle amputations.

A number of our earlier operated cases are still alive, but as our social service did not function until 1924 there is no complete follow-up of our earlier cases.

During 1927 to 1928, 52 patients had a radical breast operation; 28 of these died of a recurrence; 24 lived, or 46.1 per cent.

Of 120 cases traced since 1918, 40 are still living, a total of 33.3 per cent.

No attempt has been made to tabulate the percentage of cures in groups in which the breast alone was involved and those with axillary metastasis.

A comparison of the statistics of various hospitals where radical surgery is performed in breast cancer shows practically similar results.

In the statistics presented at the Congress of Surgeons in Chicago in 1933, the percentage of five year cures in those cases in which the breast alone was involved varied from 62 to 71 per cent, and where the axilla was involved it varied from 24 to 30 per cent, making a total of about 40 per cent five year cures in both groups.

These elaborate summaries would seem to justify and confirm a statement of Rodman made in 1912 that surgery should cure one half of all cases of breast cancer provided they can be subjected to the complete radical operation early in the disease.

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James C. Munch, Glen Olden, Pa. (Journal A. M. A., June 9, 1934), made an extensive search of the literature prior to January, 1934, to learn the extent of human poisoning from thallium compounds and the number of deaths resulting therefrom. He found that following industrial exposure twelve persons have been poisoned, but none died. Following clinical use, 692 persons have been affected and thirty-one deaths resulted. Toxicologic literature records fifty-three human beings poisoned by thallium compounds, with ten deaths. Following the rodenticidal and entomologic use, twenty-one human beings have been poisoned and five died. Reports have been found on 778 human beings poisoned with thallium compounds; forty-six (6 per cent) died of thallotoxicosis.

RADIOLOGICAL VIEWPOINT OF CANCER OF THE BREAST

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I fully realize that perhaps I am assuming unlimted responsibilities in attempting to evaluate the recent developments of irradiation therapy in mammary cancer. This is especially true since there are so many different breast tumor problems, atypical sequelae and accompanying complications which primarily should and of necessity must receive individual consideration.

Critically analyzing the situation as a whole; namely, the value of roentgen ray or radium as therapy measures in all types of breast cancer is an almost impossible task. No more radical or illogical however than the remark recently made by that famous British surgeon when he bluntly stated that he had operated upon his last case of breast cancer, preferring irradiation methods of treatment. Of course, I cannot agree with any broad or unqualified statement referring to the treatment of malignancies unless the conclusions reached are reasonably conservative and specific.

Therefore, the different types, conditions, or stages of mammary cancer which many of us must face daily will be considered as individual problems, and the various methods or types of irradiation treatment, which I believe to be therapeutically applicable and practically effective to meet such situations, will be selectively evaluated to the best of my ability.

Two extreme problems today confront both surgery and radiotherapeutics in the nature of over enthusiastic reports, many of which conclusions have shown a tendency to becloud the sane consideration of the unsolved vital issues, either in the direction of being ultraconservative in preference to taking advantage of the progress made in the various sciences, or exhibiting inclinations toward highly experimental or unorthodox methods of treatment. There may exist certain doubts in the minds of medical practitioners as to which method or methods of attack are logically sound.

Which end results are the more reliable from an effective therapeutic standpoint, in view of the ever-changing irradiation technic in combination with or without surgery or electrocautery, is a logical question that should be answered. By the time one series of cases is completed and analyzed, a more effective newer type or combination of roentgen ray or radium is developed and perhaps found to be initially at least vastly superior to all previous methods of treatment. Surgical technic on the other hand has been reasonably standardized and the final end results are well understood.

Irradiation by means of roentgen ray and radium is the youngest of medical sciences. In view of the advances that are constantly being made, is it not to be expected that a certain degree of confusion will continue to exist until the combined experiences are more fully analyzed and the method of application standardized to meet the needs of the many individual mammary cancer problems?

The physical principles underlying all irradiation methods, however, must be given due consideration in every breast problem. Conservative radiological judgment in this respect may be the determining factor of success or failure.

When the roentgen rays (or radium rays) pass through a material substance, such as aluminum, brass, gold, platinum, copper, or through body tissues, changes in the quality and intensity of the irradiating medium take place. These metals act not unlike the paper or stone filter when employed in separating chemicals. The actual physical phenomena which take place when roentgen rays are filtered, however, are quite different. Something radical happens to these rays after passing through a metal filter by changing most of their characteristics, and in this respect differ from paper or stone filters employed by the chemist.

The practical importance of filtration by placing a known thickness of aluminum or copper between the roentgen ray tube and the patient is no doubt in a general way known to most of you. The soft rays are absorbed while the more penetrating, or "hard" roentgen rays travel beyond the patient's skin.

The tanning of the skin alone, however, is but a minor criterion or incomplete evidence of whether or not effective roentgen ray treatment had been administered. The structures beneath the skin and the more important glands and lymphatics will unquestionably be overlooked unless the roentgen ray distribution in the depths and other factors have been carefully considered and calculated in advance. If not, then the use of irradiation methods in combating malignancy had better be entirely discarded.

The important technical features of ad-

ministering roentgen ray energy such as voltage, focal skin distance, filtration, and the number of cross-firing portals of entry, in addition to the number of roentgen units must be given greater consideration. Systematically changing and readjusting the above physical factors control the absorption of the individual beam of roentgen ray or radium by the breast tumor cells and the deeper lymphatics. Perhaps more harm than good might result if either too large a dose of nonpenetrating roentgen ray or, the reverse, too small a quantity of the more penetrating type of roentgen ray were employed. The mere application of a few shots of roentgen ray will neither suffice to treat breast cancer effectively nor retard its growth.

We must therefore physically analyze in advance what changes may be expected to take place to the beam of roentgen ray as it passes through the skin of the patient. Otherwise, it would be practically impossible to estimate the degree of roentgen ray absorption by the structures or tissue cells within the first one half centimeter, second centimeter and third centimeter, much less calculate the degree of homogeneous distribution throughout the remaining deeper lymphatic, or potentially malignant glandular structures.

Of equal importance are the biological considerations of cancer cells, especially the grading of the mammary breast tumors from a roentgenological as well as the surgical standpoint.

Dr. Jorstad has given you a clear and practical concept of the many radiosensitive considerations in breast malignancies. From a practical standpoint carcinoma of the breast is not a single disease but may be classified as clinical subdivisions, and all the groups will show differences in their gross anatomy, pathological history, radiosensitivity and clinical course. It would be almost inconceivable to compare a bulky adenocarcinoma with the diffusely infiltrating multiple foci duct type of carcinoma. The radiation effects for practical purposes may be classified either as direct actions on malignant cells, or indirectly as vascular thrombotic, slow occlusion or productive fibrotic changes.

The irradiation effects will vary in a given case, depending upon the degree of radiosensitivity of the cells as well as upon the other considerations mentioned; namely, the clinical course, gross anatomy, pathological history, etc. The type of radiation selected will be influenced both by the extent of the lesion and the apparent resistance of the patient.

At the Barnard Free Skin and Cancer Hospital Grades 1, 2, and 3 are employed as simple designations of different grades of malignancies. Grade 1 has been found to be the least radiosensitive and in this type surgical five year results have been the more favorable. In Grades 2 and 3 in which the cells appear to be undifferentiated, presenting many mitotic figures irregularly distributed, variable size nuclei and an absence of normal tubular and breast duct structures, the surgical results were found definitely to have been the least favorable. Forty per cent of the cases of mammary cancer at the Barnard Free Skin and Cancer Hospital were considered by Dr. Jorstad to show Grade 2 characteristics, forty per cent Grade 3 and the remainder Grade 1.

The general statistical summaries of the surgical results in Grade 3 malignancies are reported by some as nil and by others respectively 5 to 10 per cent for five year recoveries. In Grade 2 the surgical results were found to be slightly more favorable than those observed in Grade 3. The reverse is true of the relative degrees of radiosensitivity. The anaplastic undifferentiated mammary cancer Grade 3 is highly radiosensitive and almost equally so Grade 2. Therefore, irradiation therapy is especially indicated in the rapidly growing Grades 2 and 3 types of breast cancers as a postoperative measure.

Properly applied postoperative roentgen ray treatments, three or four weeks after a radical breast resection, must include a thorough irradiation of the supraclavicular, infraclavicular, anterior and posterior axillary areas in addition to the local operative field structures. Such a thorough roentgenization should be repeated every six or eight weeks, the number or total dose depending upon the grade and extent of the tumor. Most frequently two or three such series suffice.

The question of preoperative radiation is also a most important consideration in our breast problems of today. I discussed the various phases of irradiation therapy with Dr. Lee during the latter part of 1933 in relation to all types of breast cancer. He very much favored preoperative roentgen ray treatments, but added that many practical difficulties had to be surmounted for obtaining the cooperation of both the surgeon and the patient. In the majority of cases postoperative irradiation was the only practical compromise.

Perhaps the histological and pathological studies of the effect of radiation upon the lymphatics has not been as convincing as it

should be; nevertheless many careful clinical observers have been led to believe that external radiation of the breast tumors had definitely decreased the number of subsequent metastases, since the drainage avenues were necessarily closed to the supposed dislodged neoplastic cells. Dr. Canti's films clearly demonstrated and showed most convincingly the quantitative effect of irradiation upon the individual cells. These microscopic moving picture magnifications graphically portrayed what the probable lethal or inhibiting effect is on live cancer cells when preoperative roentgen ray is administered. A mild amount of irradiation initially slowed up the individual movements of the cells, but finally complete fixation and disintegration took place as soon as the irradiation absorption had reached the saturation point, or lethal dose of the cancer cells. Therefore, properly given, preoperative radiation has its useful field of endeavor. Three or four days after the completion of the preoperative roentgen ray dose, surgical removal may be safely executed.

Time will not permit me to discuss all of the recent higher roentgen ray voltage developments, especially the 700,000 volt high tension apparatus. This type of irradiation is applicable only to a small percentage of breast problems. Personally, I prefer the lower potential type of treatment for the average routine breast cases, and regulate the filtration to meet the needs of special cases. In fact I usually employ much less than even 180,000 and more frequently find 120,000 the more effective voltage in mammary breast malignancies.

The employment of the five or six gram radium pack also has its limitations. The very fact that a large dose is administered in a comparatively short time in my experience is theoretically and practically less effective. The treatment of other types of lesions in other regions of the body or bone tumor therapy is another problem, and the above conclusions merely apply to the treatment of mammary breast cancers.

The futility of surgical intervention in the inoperable breast cancer groups from a curative standpoint has already been emphasized. A simple mamectomy sometimes is indicated after preoperative radiation. This is especially true when the tumor is large and distressing to the patient, or when extensive ulcerations predominate. The majority of the cases which I see at the Barnard Free Skin and Cancer Hospital are in this inoperable class of advanced malignancies.

If the growth of the lesion can be temporarily halted, the tumors show signs of regression, or reduce the possibility of superficial ulcerations so that the patient may be better able to combat eventual distant metastases and continue with his or her occupation for many added years, irradiation is indicated even in the most hopeless inoperable cases.

The selection of the type of radiation is most important and may be influenced by the size, extent, character and degree of radiosensitivity of the lesion; otherwise should the radiation be too severe the body resistance to the lesion might be too suddenly lowered. External roentgen ray irradiation in these hopeless cases is the treatment of choice. The technical problem of selecting the proper quality and quantity of roentgen ray or total dosage will vary greatly in these cases, since the minimum and maximum voltage equivalents are 120 kv. and 200 kv. with primary filters of 3 mm. of aluminum to 2 mm. of copper, so also may the total roentgen unit dose vary to a greater or lesser extent, depending upon the above combination of factors.

The supraclavicular and axillary regions must be given special attention so that the potentially maligant deeper glands may receive sufficient irradiation. It has been most encouraging to observe that the metastases involving the sternum have usually been very radiosensitive and retrogressed very early. Usually the metastatic glands are slightly less radiosensitive than the primary lesion cells. These sternal tumors, however, appear to react most favorably since the histological character of the metastases in several cases which I had examined were all of the anaplastic (small cell type) cancers.

The irradiation of bone metastasis has likewise proved itself to be of value as a palliative measure. In many exceptionally extensive pelvic metastases, the reduction in pain following irradiation has been more than worth while. In these cases the bone lesions readily show evidence of retrogression, the bone destruction is temporarily stopped, while the translucent bone metastatic areas show new and dense calcium deposits, or regeneration toward the normal. Of course, you are all familiar with the rapid bone healing phenomena of metastatic fractures. Metastasis to a single bone or small area does not respond as readily to irradiation as when the dissemination is of the more general type. Many of these bone metastases which have shown response to irradiation are more frequently of the anaplastic small cell type.

The history of the initial attempts at irradiating breast cancer by means of buried

radium beneath the superficial skin surface is most interesting, especially in view of the more recent scientific and technical developments in this direction. The usual routine in the early days was to employ steel needles containing from 7 to 12 mgms. of radium directly into or around the tumor. Although this method, in a measure, occasionally proved effective in the smaller lesions, nevertheless the inevitable subsequent necrosis and irritation at the site of the needled area could not be avoided without reducing the cancer killing radium dose to the point of being ineffective.

Since then the British School of Radium Research revived interest in the interstitial irradiation method of treating not only the primary breast malignancies but also the axillary and other node extensions. Their technic closely followed the principles laid down by the Regaud school; namely, that small amounts of radium in platinum containers, or needles having a high filtration value, when accurately placed in cross-firing positions in the region of the growth should further increase the desired radiation effect. Even though these minute needles were left in place for seven days or longer the irritating alpha and beta particles, or harmful rays, were absorbed by the platinum. Both the smaller quantities of radium as well as the higher filtration value of the platinum prolonged the irradiation time thereby more effectively influencing the malignancy in question during the vulnerable division cycle of the various cancer cells. Fortunately, to a certain degree, the reverse is true of normal cells. Therefore these workers are convinced that smaller amounts of radium applied for longer periods of time are more effective than larger quantities of radiation for shorter periods of time.

These biological and radiological concepts that periodically malignant cells will show a greater degree of relative vulnerability to radiation has been made use of by these British workers, research investigations at the Memorial Hospital and by Drs. Meland, Soiland, Costolow, Martin, and many other American radiotherapists.

Since these new developments are relatively recent, necessarily the various methods of approach in the treatment of breast cancer differ to a greater or lesser extent. The ideal technic sought by these special workers is to approximate a radical resection of the disease by complete irradiation or destruction of not only the breast tumor, but equally so the lymph channels and the neighboring glands of the axilla, supraclavicular and infraclavicular regions.

The Memorial group has especially emphasized the advantages of gold filtered removable radon transfixation tubes placed beneath the skin in the treatment of mammary cancer. This method differs from the radon technic, or the nonremovable gold seed method originally developed by the Memorial group. This new development of removable gold tubes by Drs. Pack, Failla, and others, apparently has not been universally employed but some of their preliminary results are encouraging. The gold tubes are 3/10 of a mm. thick and of varying lengths. Because of their increased length tumors larger than 6 cm. can be treated.

It was noted, however, that the breast amputations of the lesions treated by means of the gold filtered larger removable radon tubes, not infrequently showed isolated nests of live cancer cells. Apparently these limited areas had received insufficient radiation, due perhaps to errors in the accurate placement of the respective radiation tubes. Some of these amputated breasts showed untouched distant active glandular cells.

Perhaps errors in the accurate placement of the radium tubes will be less frequent in the future as the technical skill of these workers improves so that the entire breast areas may receive a homogeneous dose of effective radiation. In view of the anatomical variations and the probable proximal positions of the lymphatic and glandular structures in relation to the important axillary vessels and nerves, it does seem as though the thorough irradiation of the axilla by this means alone is even at best a most difficult procedure and as yet does not appeal to me in its entirety as having an unlimited universal application, at least not to the extent of replacing surgery and external radiation in the treatment of mammary cancer. This method, of course, is definitely contraindicated when the breast lesions are infected.

Even under the most favorable conditions these workers also advise that roentgen ray therapy should precede the introduction of the removable transfixation tubes.

CONCLUSIONS

1. Irradiation as the sole means of treatment is justified only in a very limited group, chiefly in the rapidly growing tumors of the very young, in pregnant women, in those suffering from some grave constitutional disorder, breast tumors in the very old, or in the widely disseminating type of inoperable mammary cancers.

2. In the inoperable groups of mammary cancer, the worth while palliative results ob-

served, such as the relief of pain, improvement in the bone metastasis, favorable physical and clinical changes both locally and generally, and the adding of many months or years of reasonable comfort, more than justify the use of external roentgen ray therapy measures.

3. Preoperative or postoperative irradiation indications depend largely upon the location, extent, node distribution, type, grade, degree of malignancy or radiosensitivity of the breast tumor, but surgery in my opinion remains the method of choice in the combination treatment of operable mammary cancer.

4. Postoperative roentgen ray treatment, three or four weeks following the removal of the local breast lesion is especially indicated in the radiosensitive Grade 2 or 3 types of breast malignancy.

5. Surgical removal of the breast lesion may with distinct advantages be preceded by preoperative roentgen therapy by three or four days.

6. The use of multiple small platinum filtered needles containing minute quantities of radium element has proved to be reasonably successful in skilled and experienced hands in the treatment of operable breast cancer; but additional investigations and further observations must necessarily temper our final judgment as to the future possibilities of this method as a routine procedure.

7. The haphazard routine application of "four or five shots" of roentgen ray, either as a postoperative or palliative measure, without knowledge of the clinical course of the disease, the grade of malignancy, or the accuracy of the roentgen dose, is indeed a procedure which certainly should not be encouraged; nor should such results be taken as a criterion for comparison of five or ten year statistical values.

8. Needless for me to add that if surgeons, radiologists, pathologists and internists as a group, who individually and collectively have had experience in the management of malignancies, cooperate in the broadest sense from the standpoint of diagnosis and treatment, mammary cancer in the future will potentially be a lesser problem to both the medical profession and the public alike.

Beaumont Medical Building.

THERAPY OF COOK COUNTY HOSPITAL

Bernard Fantus, Chicago (Journal A. M. A., June 9, 1934), presents the therapy of amebiasis as it is practiced by the staff of the Cook County Hospital. The report includes prophylaxis, treatment and the necessity of distinguishing between the treatment of severe and mild cases and cases in which there is abscess of the liver.

CANCER FROM THE INTERNIST'S VIEWPOINT

C. MALONE STROUD, M.D.

ST. LOUIS

Every internist is frequently confronted with the problem of differentiating cancer from some more common ailment. The fear of cancer, possessed frequently by doctor as well as patient, is responsible for the employment of many of our commonly used diagnostic procedures. Many roentgen ray pictures could be dispensed with if cancer diagnoses were obvious.

As most of us see only a few cancer patients a year our clinical ability as applied to cancer is limited by experience. A thorough knowledge of malignant conditions, their course and probable outcome is first of all essential to the proper handling of cancer patients.

The employment of all the well chosen laboratory facilities at our disposal, however, is frequently justified in the detection of an early malignant growth. A surgeon once stated that he would rather remove a hundred normal appendices than to permit one to rupture. Present day internists may justifiably say that it is better to take a hundred roentgenograms and find them normal than to omit one which would reveal a curable cancer.

After the diagnosis is made the internist is confronted with the proper disposition of the patient. It behooves him to select a surgeon well skilled not only in operative technic but one whose knowledge of radium and roentgen ray is sufficient to use either with discretion.

The treatment of the complications of cancer usually falls to the family doctor. His knowledge of the course of malignant disease is again necessary in determining the proper management of a given case.

Among the incurable cases one of the inevitable complications is pain. The proper management of a hopeless cancer patient with pain requires a well balanced humanitarian outlook as well as a knowledge of therapeusis. In our clinic at the Barnard Free Skin and Cancer Hospital an effort is made to give the patient continuous relief. The proper use of a recently introduced drug known as dilaudid has been found to be efficacious.

The education of the general practitioner as regards the management of cancer rests on the shoulders of those who are expert in their respective fields.

The education of the laity is one of the problems of the doctor as well as the prob-

lem of agencies. It is necessary, therefore, that the physician equip himself with accurate reliable data, and that he should not at any time be a source of misinformation.

420 University Club Building.

ENDOMETRIOSIS

EDGAR F. SCHMITZ, M.D.
ST. LOUIS

The term endometrioma or endometriosis as generally applied is used to designate tumor types that are characterized by tissue proliferation more or less closely simulating endometrial structure, frequently accompanied by hemorrhage. This tissue has been recorded as having been found in such widely separated fields as the peritoneal cavity, umbilicus, inguinal region, appendix, abdominal scars, etc.

The increasing interest in these structures during the last few years has filled the literature with reports and theories as to their origin, the two outstanding of these being that of transplantation and that of metaplasia. While these two theories are attractive and seem adequate to explain certain groups of these structures, yet they are not all-satisfying and fail to cover every case.

Having had an opportunity of observing several different classes of these endometriomata during the last few years I am recording my observations as perhaps being pertinent to a discussion of the various types involved since some phases of the origin of these growths have proved obdurate of solution.

For the sake of clarity I wish to present three cases involving three different regions of the body showing the same type of growth in each, but evidently having different modes of origin. In one case there can be no doubt of its direct endometrial ancestry. In another while the picture is that of an endometrioma the origin is quite dissimilar; and though not in the category of a closed case it presents evidence so strongly in favor of a different origin that one must indeed be able to marshal strong forces against the theory under which it is presented to nullify the deductions. The third, while elusive in the manner of classification, at least gives pause for further thought and speculation.

REPORT OF CASE

Case 1. Mrs. H. Both tubes, one ovary, a portion of the other ovary and a small fibroid tumor in the anterior uterine wall were removed at operation two years before the patient came under my care. The abdomen was drained. The first menstrual period following her return from the hospital was unusual as the bulk of the bloody discharge came through the abdominal wound. This condition persisted for many periods, the discharge decreasing in amount as a mass developed about the existing sinus. Examination showed the uterus in antiflexion, left ovary palpable but not enlarged. In the midline just above the pubis a sinus tract was present which at times discharged blood; and this was surrounded by an area about two and a half inches in diameter which felt like a distinct tumor mass firmly fixed to the abdominal wall. A diagnosis of endometrioma was made and operation advised. A mass was removed from the anterior abdominal wall; it was firmly attached to all adjacent structures and contained cystic cavities filled with old blood and a fibrous sinus tract.

The gross pathology follows: A mass with a central strand of heavy glistening fibrous tissue is seen; on each side of it there is more or less loosely arranged connective tissue containing cysts filled with thick tenacious brown slimy material. Microscopic examination shows the main bulk of the tumor to be connective tissue. Epithelial lined cavities occur here and there filled with secretion and these are surrounded by a stroma which stains only with hematoxylin, resembling endometrial stroma. The epithelium lining these cavities is cuboidal or high columnar and usually occurs in a single layer. There are some strands of what appear to be smooth muscle throughout the section. Many scattered hemorrhages can be seen. Diagnosis endometrioma.

I was fortunately able to obtain the gross specimens of the tissue removed from this patient at her previous operation and the report on this shows, one section of fibroid tumor, one portion of an ovary, normal, one tube which oppears normal, one ovary with a hemorrhagic corpus luteum.

As there was nothing in the tissue removed at the first operation to suggest an endometrioma, and as a direct sinus tract was established between the endometrial cavity and the abdominal wall through which the patient menstruated for some time, it appears that this case can be classified as one of direct extension or implantation and falls within the category of that theory.

The second case is most unusual and so far I have been unable to find its counterpart in the literature. Several years ago I reported it in the *American Journal of Obstetrics and Gynecology,* June, 1927. At that time I did not know that I would have a further opportunity to augment my findings and be able to use them in this paper.

Three years previously I had operated on this patient for a mass in the right inguinal region and a large chocolate cyst of the right ovary. Examination of the tissue removed from the groin was diagnosed as an endometrioma and my conclusions as to its origin at that time were, that it was probably one that could best be accounted for by the the-

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From the Department of Gynecology and Obstetrics, St. Louis University School of Medicine.
Read before the Faculty Seminar, St. Louis University, January 25, 1934.

ory of metaplasia. I now have come to an entirely different conclusion as to the origin of this tumor; at least so far as the inguinal portion of the mass is concerned, as I now have a second bit of material for study.

REPORT OF CASE

Case 2. The patient returned to me after a lapse of three years with the history of the development of a mass in the left inguinal region (that is, the opposite side). This gave the same symptoms, pain and enlargement just before and during the menstrual period as the growth which had previously been removed on the right side. The mass was taken out and proved to be identical both in gross and microscopic structure as well as in location, though on the opposite side, as the tumor removed three years previously.

The mass removed from the left inguinal region measured 5 by 3 by 1 cm., was lobulated and firm in consistency. On section the surface showed strands of glistening tissue forming a stroma in which many small opaque islands were found, sometimes filled with clotted blood. Microscopically the tumor is made up of connective tissue stroma containing islands of endometrium. These islands are composed of glands somewhat irregular in shape with variable quantities of stroma. There are a few islands in which stroma only occurs and these are frequently pigmented. Diagnosis, endometrioma.

It will be seen that we are here dealing with a most unusual type of case and one which seems to indicate that the inclusion theory (fetal rest) cannot be entirely discarded in dealing with these so-called endometriomata. It seems highly improbable that any one of the other theories could explain the occurrence of an identical tumor mass arising in an identical location on the opposite side of the body after a lapse of three years. There was no connection with the peritoneal cavity at either time on either side so that direct implantation can be ruled out. It is not probable that metastasis could occur after so long a period with no other demonstrable lesion present, or that cell elements could be carried to the exact spot in both inguinal canals. It would seem equally fantastic to consider a metaplasia of existing cells in two such widely separated areas both as to location and time.

The obvious explanation as to the origin of this growth would then seem to be the development of symmetrically located fetal inclusions or rests, for as the two sides of the body do develop symmetrically and from the same embryonic structures it is quite conceivable that inclusion of aberrant tissue could develop as it did in this patient. In fact the inclusion theory is the only one tenable in this case.

REPORT OF CASE

Case 3. Mrs. N. This patient was referred to me because of severe dysmenorrhea. The pain would come on about a week before the expected period and continue until almost the last day. Her suffering was so intense that something radical had to be done, all previous medication having failed to give relief. The examination of the pelvis was absolutely negative and on the history alone I made a diagnosis of endometriosis.

As the patient was very anxious that something should be done and as she was nearing the time of her normal menopause, I suggested the removal of both ovaries. To this she would not consent but insisted that I open the abdomen and verify my diagnosis. Accordingly the abdomen was opened and thoroughly explored and the following pathology discovered: The uterus was in normal anteflexion, not enlarged, regular in outline. The tubes and ovaries were normal in every way on both sides. On the posterior surface of the uterus, on the posterior surface of the broad ligaments, especially along the lower tubal margin, and on the pelvic portion of the large bowel, numerous small hemorrhagic areas were noted together with many adhesions. The culdesac was entirely closed by dense adhesions and the entire picture was that of a typical multiple type of endometrioma.

As it was obviously impossible to remove all of these tiny growths or break up the many adhesions the abdomen was closed and the patient subsequently treated with roentgen ray to produce an artificial menopause. With the cessation of her ovarian function after a series of such treatments the abdominal symptoms entirely disappeared.

The peculiarity in this case which prompts me to report it here is the striking distribution of the hemorrhagic areas, the absence of any cystic growths anywhere in the pelvis and the evident complete retrogression following roentgen ray treatment.

We are then confronted with a third type of endometrial growth, occurring in the peritoneal cavity, with involvement of the gut, uterus and broad ligaments but rather strangely not affecting the tubes or ovaries. How then shall we account for the origin of these tumors with such widespread distribution bilateral in character? It would seem highly improbable that regurgitated material through the open tubal ends would so equally implant itself on the adjacent structures without leaving some trace on the ovaries or fimbria of the tubes which surely would be the first areas to come in contact with such material. But no involvement of the tubes or ovaries was found on either side. This makes the theory of direct implantation a bit problematic. The inclusion or rest theory could not possibly apply here as the distribution is quite too irregular. Metaplasia could logically be applied but still the causative factor that brings this change about is wanting.

As I said in the beginning of this paper, the third case is one which, "while illusive in the manner of classification at least gives pause for further thought and speculation." In

fact we find ourselves confronted with a state of affairs here where no one theory suffices adequately to explain the existing pathology.

And this brings me to the *raison d'etre* of this paper. I have presented three cases of so-called endometrioma, two of which seem to be fairly well classified as to origin, the third resting purely in the realm of speculation. All three occurred in different portions of the body. All reacted to some hormonal effect as they were definitely affected by menstruation. Each produced a larger or smaller tumor mass. Each was associated with tissue hemorrhage and yet each seemed to have taken its origin in a different way.

What then are these so-called endometrioma that present so many complexities? Are they one and the same growth regardless of location? Must they be identical because they seem morphologically similar? Is the similarity really as striking as we would like to have it appear? Does the mere fact that they react in like manner to some internal secretion make them have a common origin? Are they all really derivatives of endometrial tissue? If and when these questions can be answered we will have, or at least be closer to, a solution of this most interesting problem.

In the meantime, having viewed the question from its various angles, I have come to the conclusion that we are dealing with distinct entities in many of these tumors; that the similarity is superficial rather than real, that the derivation from endometrial tissue in the sense of a carrying over of cell elements already formed or in an immature state is certainly not tenable in all cases, that many growths now classed as endometrioma must eventually be taken out of this bracket, and that the last word has not yet been spoken regarding the origin of these growths.

A much closer study not only of the morphology, but of every possible laboratory and clinical phenomenon must be made before we can understand the complex nature of these growths, and the pathologist must ultimately clarify the situation by dispassionately sifting the evidence of all investigators to the end that a more logical concept of the growth of this heterotopic tissue may be obtained and a more suitable terminology apply.

501 Metropolitan Building.

ARTIFICIAL PNEUMOTHORAX

Albert Behrend and Roscoe B. G. Cowper, Philadelphia (Journal A. M. A., June 9, 1934), treated eleven patients having unilateral lobar pneumonia with artificial pneumothorax to compress the affected lung, with two deaths. Neither of these fatalities could be directly attributed to the pneumothorax. They believe that collapse therapy is a rational form of treatment of lobar pneumonia, based on sound surgical principles. That lung tissue affected by lobar pneumonia can be compressed by air has been shown clinically, by roentgenograms and at necropsy. Artificial pneumothorax relieves the pain of the pleurisy that frequently accompanies labor pneumonia. It is possible to induce a critical fall in temperature by artificial pneumothorax. The authors believe that artificial pneumothorax is neither a "cure all" nor a "therapia magna sterilisans," but it has shown itself to be a valuable adjunct in the treatment of lobar pneumonia and even a life saving measure in some cases. They have seen no complications directly attributable to the procedure.

A MILK AND BANANA DIET FOR THE TREATMENT OF OBESITY

George A. Harrop, Baltimore (Journal A. M. A., June 16, 1934), proposes a diet having as its basis bananas and milk for the treatment of overweight, on the grounds of simplicity, low cost, ready availability, palatability, high satiety value, low salt content and demonstrated effectiveness in securing the desired aim. The strict diet consists of six large bananas and 1,000 c.c. of skimmed milk, to be eaten in three or more meals, spaced according to the personal food habits of the individual. Only fully ripened bananas, i. e., fruit with yellow skin flecked with brown, should be used. Buttermilk made from skimmed milk may be used in place of the plain skimmed milk if desired. A salad of one fourth of a medium sized head of lettuce, or of an equal quantity of cabbage, with a small amount of mayonnaise dressing made with liquid petrolatum, is a useful and valuable addition at one meal during the period of strict diet. This diet is followed for from ten days to two weeks and usually produces a weight loss of from 4 to 9 pounds. Fluids without food value, including tea or coffee, but without cream or sugar, are permitted freely. Salt is avoided to discourage retention of body fluid. At the end of from ten to fourteen days on the strict diet, alterations may be made as follows: 1. Substitution of one or two eggs, boiled, steamed or poached, salted, with one fourth square of butter for one or two bananas, as the case may be. If the first period of strict diet is too rigorous, one egg, with one fourth square of butter, may replace one banana from the outset. 2. Use of from one to four average servings of green vegetables, containing 5 per cent carbohydrate or less. One square of butter melted may be poured over these vegetables at the table, but no butter or fat of any sort should be used in the cooking. 3. Addition of one small portion of any lean meat, fish or poultry, except pork. No thickened gravy is to be used. No fat-containing foods, except the portions of butter expressly mentioned, and no foods containing sugar or starch in any form are to be used. The regimen as outlined is to be followed alternately: from ten to fourteen days of the strict banana and skimmed milk diet is followed by two weeks of the less restricted diet. During the less restricted period, care is taken to avoid regaining weight, but no further loss is desirable. At the end of the less restricted period of two weeks the strict diet is again resumed for two weeks, and so on until the desired loss is made. Although the nitrogen intake is much lower in this diet than in the diets described in current publications, the nitrogen balance has been attained in six cases studied when on the strict diet at the end of one week, and of two weeks. In four it was not, but the nitrogen loss in no case exceeded 2 Gm. a day after the end of the tenth day.

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JULY, 1934

EDITORIALS

EDWIN LEE MILLER, M.D.
President-Elect, Missouri State Medical Association 1934-1935

Dr. Edwin Lee Miller, Kansas City, was chosen President-Elect of the Missouri State Medical Association by the House of Delegates at the St. Joseph Session, May 7 to 10. Dr. Miller will serve as President-Elect during 1934-1935 and as President in 1935-1936.

Dr. Miller was born in Stafford, Kansas, February 8, 1887. He spent his boyhood in Norborne, Missouri, where his father, the late Dr. S. W. Miller, practiced medicine. Dr. Miller's grandfather, the late Dr. John H. Cramer, Mandeville, was also a Missouri practitioner.

Dr. Miller was graduated from the Norborne High School in 1904 and was valedictorian of his class. He attended the University of Missouri for four years gaining recognition in both scholarship and athletics. He was captain of the football team twice, an honor not extended to any captain since then. At graduation he was class orator.

He received his degree in medicine from the Harvard Medical School in 1911 and attended foreign clinics for the following six months.

Dr. Miller began his practice in Kansas City as a partner with Dr. Herman E. Pearse, an association that continued throughout the active career of Dr. Pearse. He became a staff member of St. Luke's Hospital in 1912 and has been continuously on that staff since then, at present serving as attending surgeon. He has served as alternate surgeon at the Kansas City General Hospital since 1916 and is now chief of all surgical services at that institution.

Dr. Miller was married to Miss Faeth Pearse, a daughter of his associate, Dr. Pearse, and they have three sons. One is attending Harvard Medical School and the other two are attending the University of Missouri.

Dr. Miller became allied with organized medicine soon after he began his practice and has been a consistent promoter of all interests for the betterment of the medical profession and a strict upholder of all the principles of medical ethics. He is also a member of the Western Surgical Association, a Fellow of the American College of Surgeons and an honorary of Phi Beta Kappa.

The problem of the specialist in the city is well known to Dr. Miller for such is his personal problem; the problem of the physician in the small town and rural community has been known to him since childhood. He is eminently well fitted to be a leader of the profession in Missouri.

CLEVELAND SESSION, AMERICAN MEDICAL ASSOCIATION

The Eighty-Fifth Annual Session of the American Medical Association held in Cleveland June 11 to 15 was acclaimed by all who attended as one of the most important gatherings of the medical profession ever held in this country or, indeed, in any country. From the opening session of the House of Delegates on Monday morning June 11 to the closing of the

sections of Friday afternoon the interest of members never lagged, in fact, it increased from day to day as members viewed the various exhibits, listened to the contributions in the scientific session and heard the House of Delegates pass on important problems.

The scientific exhibits was probably the most remarkable presentation that has ever been attempted in this department. Its instructive value, its size and scope surpass any similar presentation.

There is room in this issue to mention only one or two decisions of the House of Delegates of far reaching influence, viz.: One was the resolution termed the "10 Point Declaration" of policy for the guidance of the Association in considering any changes in the nature of new forms of practice. The points are:

1. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.
2. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.
3. Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give services.
4. The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.
5. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.
6. However the cost of medical service may be distributed, the immediate cost should be borne by the patient able to pay at the time the service is rendered.
7. Medical service must have no connection with any cash benefits.
8. Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.
9. Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.
10. There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

In summary, "the consensus was that the present standard of medical practice is superior to that afforded people generally in any other country of the world. If it is determined in any community that some experiment to change the method of administering medical service is desirable, observance of the principles adopted will remove many of the 'disturbing influences' from such an experiment. In all such experiments attention must be sharply focused on the quality of medical service rather than primarily on any other factor."

The other resolution declared by unanimous vote of the House of Delegates was that only the American Medical Association is entitled to voice the opinion of organized medicine on these topics.

Dr. James S. McLester, Birmingham, Alabama, was elected President-Elect; Dr. George G. Reinle, Oakland, California, was elected Vice President; Dr. Olin West, Chicago, was reelected Secretary and General Manager; Dr. F. C. Warnshuis, Grand Rapids, Michigan, was reelected Speaker of the House, and Dr. Nathan B. Van Etten, New York, Vice Speaker of the House of Delegates.

One of the Missouri members, Dr. Emmett P. North, St. Louis, was appointed a member of the Judicial Council and his appointment was confirmed by the House. Dr. North had just completed a term of membership on the Council on Medical Education and Hospitals. Dr. A. R. McComas, Sturgeon, was appointed a member of the Reference Committee on Sections and Section Work.

All delegates from Missouri were present and attended all sessions of the House.

The total registration was 6293; the registration from Missouri was 144.

The next meeting will be held in Atlantic City in 1935.

NEWS NOTES

The forty-fifth anniversary of the Deaconess Home and Hospital, St. Louis, was celebrated May 27 with special services in all the Evangelical churches of St. Louis and vicinity. Seven deaconesses were graduated by the institution at a service in the evening.

Dr. Paul J. Zentay, St. Louis, was elected president of the Missouri Social Hygiene Association for 1934-1935 at a meeting held June 17 at the Jewish Hospital, St. Louis. Dr. Zentay succeeds Dr. Llewellyn Sale, St. Louis, who was recently elected president of the Community Council.

Dr. David P. Barr, St. Louis, will deliver a course of lectures on diseases of the glands of secretion at the University of Melbourn, Melbourne, Australia, this summer. Dr. Barr sailed on June 16. He will also visit New Zealand and will lecture before medical classes there. In 1930 Dr. Evarts Graham, St. Louis, was guest lecturer at the university.

At the Chicago session of the American College of Physicians Philadelphia was chosen for the 1935 meeting and the dates set as April 29 to May 3.

Dr. Neil S. Moore, St. Louis, was the guest of the Cole County Medical Society at Jefferson City May 25 and delivered addresses on "Shadowless Urinary Obstruction" and "Transurethral Resection of the Prostate Gland."

The Federal allotment for the Homer G. Phillips Hospital for the Colored, a new solaria at the City Sanitarium and a new superintendent's residence at Koch Hospital, St. Louis, has been increased from $274,000 to $334,000. The city originally asked for a grant of $375,000 to supplement funds obtained through a bond issue.

Dr. Bransford Lewis, St. Louis, was presented with a bronze plaque at the annual banquet of the American Urological Association in session at Atlantic City in recognition of his services in editing "The History of Urology." During the presentation an orchestra played "Moonlight and Roses," prompted by an article written by Dr. Lewis and Dr. Grayson Carroll entitled "Prostatic Resection Without Moonlight and Roses."

Dr. Edwin C. Ernst, St. Louis, will present an address at the fourth International Congress of Radiology to be held at Zurich and Mt. Moritz, Switzerland, from July 24 to 31. Dr. Ernst will also act as one of two delegates from the United States to the International X-Ray Unit Measurements Committee which is a part of the activities of the congress. The congress is held every three years and Dr. Ernst has been delegate to each session.

OBITUARY

ROSS HOPKINS, M.D.

Dr. Ross Hopkins, Jefferson City, a graduate of Johns Hopkins University School of Medicine, 1903, died at his home March 27 after a lingering illness of progressive muscular atrophy. He was 55 years old.

Dr. Hopkins was born in Holton, Kansas, and secured his preliminary education in that state at Campbell College and the Kansas State University. After completing his medical work at Johns Hopkins he located in St. Louis and practiced there until 1915. He practiced three years in Independence, Kansas, and for five years was epidemiologist for the Ohio State Board of Health, Columbus, Ohio. In 1923 he went to Jefferson City and was epidemiologist for the Missouri State Board of Health until 1932 when he resigned because of his health. He had been bedfast for a year before his death.

Dr. Hopkins took an active place in organized medicine. He was a member of the St. Louis Medical Society while in St. Louis and became a member of the Cole County Medical Society when he went to Jefferson City. He was vice president of the Society in 1931 and in 1932 was elected an honor member.

He is survived by his widow, Dr. Blanche Hopkins, and one son.

WILMOT CHARLES WILLITS, M.D.

Dr. Willits was born on a farm near Mt. Pleasant, Iowa, in 1866. He died while attending a patient in his office May 1, 1934.

Like all farmer boys he attended a country school in winter and worked on the farm during the summer. He did not like farming and made up his mind to become a doctor. He attended Mt. Pleasant Academy, a preparatory school, then entered Iowa Wesleyan University from which he received his A.B. degree in 1891. Before studying medicine he entered the Citizens' National Bank of St. Frances, Kansas, and was made cashier.

Dr. Willits quit the bank and moved to Kansas City, Missouri, in 1898 to study medicine. He graduated from the University Medical College in 1901 and began the practice of medicine there and continued until his death.

He married Miss Lemma Hoober, a daughter of a Methodist minister. Of this union there are two children, Mrs. Jerome Alexander, Omaha, and Dr. Lyle Germain Willits, Kansas City.

Dr. and Mrs. Willits were members of the Grand Avenue M. E. Church which they joined when they came to Kansas City in 1898.

He was a member of the Jackson County Medical Society, the Missouri State and American Medical associations.

Dr. Willits had a very large general practice. He answered calls day and night whether his client was rich or poor. His heart was full of sympathy for those who were ill and in pain.

He worked hard, often when he was as ill as his patient, but he gave of himself freely to help those needing his sympathetic care. It made no difference to him where they lived, whether in the basment, the third story of an apartment or in homes of luxury. He made his calls just the same, gave the same attention, worried about the sick child of poverty just as much as the child in the better homes.

Rev. Dr. Kulp, who officiated at his funeral, was filled with emotions of sadness and sorrow while speaking of the many good qualities and deeds of his dear friend, Dr. Willits.

Dr. Willits never criticised nor found fault with any of his fellow practitioners. He himself was strictly ethical.

He loved his home, he loved his family, and flowers, and when he lay in state in the church he loved so well he was surrounded by bouquets and sprays of flowers of every kind.

Those who carried him to his last resting place were all members of the Jackson County Medical Society and members of his graduating class.

A. J. W.—in the Jackson County Medical *Journal.*

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

Barry County Medical Society, May 15, 1934.

MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Seventh Annual Session, St. Joseph May 7, 8, 9, 10, 1934

MINUTES OF THE HOUSE OF DELEGATES

Robidoux Hotel, Monday, May 7, 1934

Morning Session

The first meeting of the House of Delegates of the Seventy-Seventh Annual Session of the Missouri State Medical Association, held in the Crystal Room of the Robidoux Hotel, St. Joseph, convened at 9:30 a. m., Monday, May 7, 1934, the President, Dr. W. L. Allee, Eldon, presiding.

At roll call ninety-six officers and delegates responded.

Officers

President.....W. L. Allee, Eldon
President-Elect... C. T. Ryland, Lexington
Vice Presidents....H. J. Wise, Sparta
P. W. Jennings, Canton
J. F. Owens, St. Joseph
Secretary-Editor.. E. J. Goodwin, St. Louis
Ass't Secretary... E. H. Bartelsmeyer, St. Louis
Treasurer.....R. A. Woolsey, St. Louis

Councilors

1st District.....O. C. Gebhart, Oregon
2nd District.....W. T. Elam, St. Joseph
3rd District.....J. A. Crockett, Stanberry
4th District.....J. B. Wright, Trenton
6th District.....J. S. Gashwiler, Novinger
7th District.....Walter D. Pipkin, Monroe City
8th District.....B. K. Stumberg, St. Charles
9th District.....A. R. McComas, Sturgeon
10th District.....Don A. Barnhart, Huntsville
11th District.....J. H. Timberman, Chillicothe
12th District.....Spence Redman, Platte City
13th District.....A. J. Welch, Kansas City
14th District.....W. A. Braecklein, Higginsville
15th District.....L. J. Schofield, Warrensburg
17th District.....Guy Titsworth, Sedalia
18th District.....E. C. Shelton, Eldon
19th District.....J. S. Summers, Jefferson City
20th District.....Charles E. Hyndman, St. Louis
23rd District.....J. B. Luten, Caruthersville
24th District.....T. W. Cotton, Van Buren
25th District.....P. S. Tate, Farmington
26th District.....W. H. Breuer, St. James
27th District.....J. C. B. Davis, Willow Springs
28th District.....W. M. West, Monett
29th District.....R. M. James, Joplin
30th District.....R. B. Denny, Creve Coeur
31st District.....H. A. Lowe, Springfield

Delegates

COUNTY	DELEGATE
Adair	G. E. Grim, Kirksville
Audrain	R. W. Berrey, Mexico
Boone	F. G. Nifong, Columbia
Buchanan	W. H. Minton, St. Joseph
Buchanan	F. H. Spencer, St. Joseph
Caldwell-Livingston	A. Collier, Chillicothe
Caldwell-Livingston	Donald Dowell, Chillicothe
Callaway	Ralf Hanks, Fulton
Carroll	E. E. Brunner, Carrollton
Carter-Shannon	T. W. Cotton, Van Buren
Christian	H. J. Wise, Sparta
Clay	J. E. Musgrave, Excelsior Springs
Clinton	W. D. Spalding, Plattsburg
Cole	J. A. Hill, Jefferson City
Franklin	F. G. Mays, Washington
Gentry	W. T. Martin, Albany
Greene	J. W. Love, Springfield
Greene	Paul F. Cole, Springfield
Grundy	W. H. Winningham, Trenton
Holt	J. F. Chandler, Oregon
Howell-Oregon-Texas	P. D. Gum, West Plains
Jackson	B. Landis Elliott, Kansas City
Jackson	Morris B. Simpson, Kansas City
Jackson	C. Edgar Virden, Kansas City
Jackson	E. T. Johnson, Kansas City
Jackson	J. Milton Singleton, Kansas City
Jackson	Claude J. Hunt, Kansas City
Jackson	Fred B. Kyger, Kansas City
Jackson	A. N. Lemoine, Kansas City
Jackson	Herbert L. Mantz, Kansas City
Jackson	Clyde O. Donaldson, Kansas City
Johnson	W. R. Patterson, Warrensburg
Lafayette	E. L. Johnston, Concordia
Lawrence-Stone	H. L. Kerr, Crane
Lewis	P. W. Jennings, Canton
Linn	J. R. Dixon, Linneus
Marion-Ralls	J. C. Chilton, Hannibal
Mississippi	A. H. Marshall, Charleston
Nodaway	W. R. Jackson, Maryville
Pettis	F. B. Long, Sedalia
Phelps	S. L. Baysinger, Rolla
Platte	M. H. Moore, Dearborn
Randolph-Monroe	F. L. McCormick, Moberly
Ray	L. D. Greene, Richmond

COUNTY	DELEGATE
St. Charles	A. P. E. Schulz, St. Charles
St. Louis	O. W. Koch, Clayton
St. Louis	C. P. Dyer, Webster Groves
St. Louis City	L. R. Sante, St. Louis
St. Louis City	Daniel L. Sexton, St. Louis
St. Louis City	H. Unterberg, St. Louis
St. Louis City	T. H. Hanser, St. Louis
St. Louis City	F. J. V. Krebs, St. Louis
St. Louis City	John C. Morfit, St. Louis
St. Louis City	E. J. Schisler, St. Louis
St. Louis City	T. A. Hopkins, St. Louis
St. Louis City	Alphonse McMahon, St. Louis
St. Louis City	R. B. H. Gradwohl, St. Louis
St. Louis City	E. Lee Dorsett, St. Louis
St. Louis City	Edgar W. Spinzig, St. Louis
St. Louis City	John McH. Dean, St. Louis
Saline	L. S. James, Blackburn
Sullivan	Warner Herington, Green City
Texas	L. M. Edens, Cabool
Vernon-Cedar	J. W. Dawson, Eldorado Springs
Webster	J. W. Good, Fordland

On motion of Dr. J. S. Summers, Jefferson City, duly seconded, the reading of the minutes of the previous meeting was dispensed with and adopted as printed in The Journal.

The President, Dr. W. L. Allee, Eldon, read his report.

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

The promulgation of Rules and Regulations No. 7 by the Federal Emergency Relief Administration whereby medical relief is provided at Government expense for those who because of unemployment and other misfortunes are unable to provide for themselves, is the first time the organized medical profession has received official governmental recognition.

Under these rules it is the duty of state and county administrators to advise with and consult officers of county medical societies. A complete and detailed report of the relationship of our Association to the Missouri Relief and Reconstructon Committee of which former Governor Wallace Crossley is director will be outlined to you by Dr. Joseph W. Love, Chairman of the Committee on Medical Economics, under whose direction the activities of our Association with regard to medical relief have been carred out.

Early in December, 1933, your President met with the relief director and discussed the policy which would be followed in Missouri. It was found that only 40 counties out of 115 were receiving medical relief from either state or federal funds. In view of this fact it was the opinion of the director, Mr. Crossley, that local relief directors and county medical officers should be encouraged to hold conferences regarding medical relief to the indigent rather than having the work directed exclusively from the state office.

We have felt the fundamental principle of any agreement entered into should be on the basis of an emergency measure and terminated when this emergency has passed; that any fee schedule adopted should be one that at least compensates the individual doctor for his expense in making the call. In view of this fact as well as having in mind the conservation of relief funds the director authorized 50 per cent of the usual local charge to be paid for medical care rendered the indigent.

The Coordinating Committee between the State Relief Commission and our Association recently authorized by the director will do much toward ironing out any difficulties which might arise in the future operations of the relief plan.

The organized medical profession has much in common with the organized legal profession. Both organizations are continually striving to maintain the highest professional standards possible not only for professional growth but also in the interest of public welfare. Splendid cooperation between local bar associations and county medical societies has been observed. It is my opinion this cooperation should extend to the respective state bar and medical associations. I recommend for your consideration that a committee of three members be appointed from each association to serve for a period of one, two and three years, respectively; such committee to be known as the Cooperative Medico-Legal Committee of State Bar and State Medical Associations; its functions to be to meet and confer as often as may be necessary for the consideration of problems pertaining to the administration of justice, and such other matters as may be conducive to cooperative relationship between the legal and medical professions and in the interest of public welfare. If the plan is acceptable it should be forwarded to the Bar Association of Missouri for similar consideration.

I have endeavored to keep in close touch with all of the activities of the various committees of the Association and the office personnel of our Secretary.

Each committee, namely: Scientific Work, Public Policy, Publication, Defense, Medical Education and Hospitals, Cancer, Postgraduate Course, Medical Economics, and the special committees, as well as your Secretary and Treasurer, will submit individual reports of their activities. These reports will be in detail. These committees and officers including councilors have worked efficiently and industriously and have done splendidly, especially in view of the present economic situation. Much economy has been practiced during the last year and I hope it will not be necessary to further curtail the activities of these committees through lack of financial support.

In my observation of the activities of the personnel of the Association's office I was especially impressed with the careful attention given to inquiries coming from the public, the press, lay and charitable organizations as well as our own members for authentic medical information. This feature of our organization has been gradually encouraged and I believe we are now thoroughly prepared to enlarge the service of the dissemination of authentic medical information on medical and health matters by augmenting our present service, I mean the gathering of expert opinion through the appointment of a group of consultants to be divided into specialty subgroups. Consultation with the advisors may be of an individual or a group nature and may take place either over the phone, by correspondence or in conference. Many inquiries may be answered within the space of a few moments. The inquiry if by telephone would be merely referred again by telephone to one of the appointed consultants and his reply is then transmitted by the office to the inquirer. Where a consensus of opinion is required the inquiry may be addressed by letter to a number of consultants and the prevailing judgment is thus secured. The consultant should be appointed for a one or two year term. The medical information bureau or by whatever title may be selected can operate successfully with the present office personnel when augmented by the consultant. Appropriate announcement of the service could therefore be made from time to time. Its service might be extended to cooperate with the newspapers of the entire state. In New York where such a bureau has been inaugurated and in existence for five years its objects can be defined briefly as follows: (1) To facilitate the dissemination of authentic information on medical and public health matters; (2) to stem and curtail quackery, (3) to promote a better understanding between the public and organized medicine.

I have hereto attached complete information concerning the medical information bureau above referred to for the information of the committee to which my report will be referred. Without going into further details of the plan I recommend for your consideration the official bureau and the appointment of a sufficient number of consultants in order that it may operate efficiently.

I have had the pleasure of visiting a number of county societies during the last year. Everywhere I found a keen interest among the members to assist in solving the problem of an adequate, efficient and satisfactory medical service. This was coupled with a splendid spirit of cooperation and loyalty to the organization in the promotion of the principles of organized medicine and the betterment of the medical profession. Because of this our organization continues to be the dominant factor in the protection of public health. To this our efforts have been dedicated. To the county society the organization owes its thanks and appreciation for this continued activity.

On motion of Dr. T. W. Cotton, Van Buren, duly seconded, this report was referred to the Council.

The President appointed the following reference committees:

Reference Committee on Amendments to Constitution and By-Laws

F. G. Nifong, Columbia, Chairman.
A. P. E. Schulz, St. Charles.
R. B. Denny, Creve Coeur.

Reference Committee on Resolutions

F. G. Mays, Washington, Chairman.
B. T. Payne, Lexington.
D. L. Sexton, St. Louis.

Reference Committee on Miscellaneous Affairs

Morris B. Simpson, Kansas City, Chairman.
F. H. Spencer, St. Joseph.
A. H. Marshall, Charleston.

Dr. W. T. Elam, St. Joseph, Chairman of the General Committee, reported as follows:

REPORT OF THE GENERAL COMMITTEE ON ARRANGEMENTS

Your committees, together with Mr. Bartelsmeyer, made arrangements for the various activities of the organization in this hotel; the scientific sessions will be held in this room; arrangements have been made for special programs and for the presentation of table demonstrations in adjoining rooms. I want to acknowledge our debt of gratitude to Mr. Bartelsmeyer for his thorough and efficient cooperation in this work.

The committee selected Dr. F. H. Spencer as general chairman for the local profession. In turn he has selected several outstanding, active men as chairmen of subcommittees. These men, in full cooperation with the individual membership and the county medical society, have responded nobly to the task set for them; they have given unstintedly to the financial support and to all the arrangements for the social entertainment of the visiting members of the Association. Our thanks to the Association's general committee and to the local organization and these committees are hereby voiced.

In closing I would like to call attention of the members to the need of the success of the proposed ten-million-dollar program for our eleemosynary institutions. Those who can make it conveniently are invited to attend a luncheon at the State Hospital tomorrow at which Dr. F. M. Grogan, the superintendent, will act as host. Your presence at the luncheon will afford you first hand knowledge of the much needed financial aid for the eleemosynary institutions of the State in their efforts to care for nervous and mental patients.

Mr. President, if I may have the privilege of the floor I would like to move that the President appoint a committee of five to act for the State Medical Association in conjunction with other committees to further in every way possible the ten-million-dollar bond issue for our eleemosynary institutions, thus conveying to the public that the Missouri State Medical Association endorses this ten-million-dollar bond issue.

The motion was seconded by Dr. Nifong and carried.

Dr. F. H. Spencer, St. Joseph, Chairman of the Local Committee on Arrangements, reported as follows:

REPORT OF THE LOCAL COMMITTEE ON ARRANGEMENTS

The committee appointed by the State Committee has been hard at work on this meeting as any of you who have ever worked on such a committee knows. The committee has rather fallen down on one thing, and that is the clinical material. We have finally succeeded in obtaining clinical material for table demonstrations with the exception of three cases of syphilis with chancre but we hope we will have these cases by the time they are wanted. Remember that St. Joseph is not as large as St. Louis or Kansas City and clinical material of certain kinds is hard to obtain.

Tuesday we have made arrangements, through the courtesy of Dr. Grogan, superintendent of Hospital No. 2, for a complimentary luncheon at the hospital at 12:30. There will be plenty of transportation to take you out there and bring you back. We would like as many as possible to go.

This afternoon there will be a golf tournament with several prizes. All those who are interested in golf please register at the desk.

Tomorrow afternoon there will be a trap shoot for those who are interested. Please register at the desk for that also. The shoot will not be held unless ten or twelve register.

Wednesday night the committee has arranged a dinner complimentary to Dr. E. J. Goodwin, Secretary of the State Association. Your committee feels that Dr. Goodwin, having been Secretary for thirty years, it is due and proper that a dinner should be given in his honor. Following this dinner the local committee of Buchanan County will give an entertainment. The committee has promised that it will be good, and knowing my committee I can vouch for this. All of the men are invited to the dinner Wednesday night and the entertainment following.

If any of you want any service of any kind, please get in touch with the members of the local committee, and if it is in reason we will be glad to serve you.

On motion of Dr. John C. Morfit, St. Louis, the above reports were accepted.

The President appointed as a committee on the question of the ten-million-dollar bond issue the following:

W. T. Elam, St. Joseph, Chairman.
J. S. Summers, Jefferson City.
S. L. Baysinger, Rolla.
R. A. Woolsey, St. Louis.
H. L. Kerr, Crane.

The Secretary, Dr. E. J. Goodwin, St. Louis, read his report as follows:

REPORT OF THE SECRETARY

Your secretary believes he is not unduly straining the facts of the actual status of affairs when he says that there has been an easement of the general economic situation during the last six months. This is reflected in the payment of annual dues. While it is true that the number of delinquents at this time is considerably in excess of the average number in other years, the amount received as dues has enabled the Association to carry on the rolls those who were embarrassed financially until they were able to pay their obligations.

The activities of the Association are keeping pace with the times. Our office is still regarded by lay organizations such as the Better Business Bureau, the press and the public in general as a clearing house for information on the status of legally licensed physicians who are members of our Association. In fact all these organizations including courts, juries and the bar association regard membership in the Missouri State Medical Association as a criterion of reputability not otherwise attainable.

Through the splendid work of our assistant secretary, Mr. Bartelsmeyer, a number of county societies have been revived and have renewed their activities as components of the organized medical profession. One society, the Lincoln County Medical Society, has been organized as a new component. There is quite a definite trend toward hyphenating several smaller societies in adjoining counties into one society.

With the good roads now well distributed over the state physicians find it an easy matter to travel 30 to 50 miles in order to go to meetings where an attendance of from 30 to 50 or 60 members make it worth while. In this direction the Postgraduate Committee has functioned admirably and speakers have been sent to assist in providing the meetings with interesting programs.

One of the most important activities of the organization is the Committee on Cancer. The work of this committee has brought the Association most favorably in the public eye because of the open meetings where large audiences of lay public are instructed in the elementals of the cancer problem. You will hear the details of the work of this committee and other committees which will show you that the organization is functioning in all the departments.

As has been customary in past years the office of the Association has cooperated with all committees in the preparation of reports, the investigation of conditions in other constituent associations and in cooperation with the activities of the American Medical Association.

The Journal did not pay for itself during 1933. You will hear from the Committee on Publication on this subject. Mr. Bartelsmeyer in company with Mr. Sandberg of the Cooperative Medical Advertising Bureau of the American Medical Association spent several days in Kansas City and St. Louis soliciting new advertising. They were quite successful but advertisers in all fields have curtailed their appropriations and we suffer along with the rest of the publications. The prospects for 1935 are better.

The terms of the Councilors of the odd numbered districts expire this year and a vacancy occurs by the resignation of Dr. R. L. Thompson, St. Louis, Councilor for the 20th District. The Executive Committee appointed Dr. C. E. Hyndman, St. Louis, to fill the position until this Session.

Three delegates and their alternates to the American Medical Association must be elected at this Session. The delegates whose terms expire are Dr. Jabez N. Jackson, Kansas City; Dr. A. R. McComas, Surgeon, and Dr. W. M. West, Monett.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Council.

Dr. Ross A. Woolsey, St. Louis, Chairman of the Committee on Medical Education and Hospitals, reported as follows:

REPORT OF COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

As chairman of this committee I want to report three hospitals examined this year—two of them first-class hospitals, one no good. The investigation was made for the American Medical Association.

While I am speaking on this I might say that there is a hospital and medical school in Kansas City that was the old McKenzie Medical School—osteopaths, chiropractors, doctors of medicine, etc. Two years ago they went down to Jefferson City and got a permit to change to the Mid-West, which was regular. That did not go over and they have a permit again to change to an eclectic, and they are now running an eclectic school with a four-year course. It has not been approved by the Missouri State Medical Association.

On motion of Dr. W. H. Breuer, St. James, duly seconded, this report was referred to the Council.

The Treasurer, Dr. Ross A. Woolsey, St. Louis, read his report as follows:

REPORT OF THE TREASURER

The financial status of the Association as of December 31, 1933, was published in detail in the April, 1934, issue of THE JOURNAL. I have brought down the figures of receipts and expenditures since the first of January, 1934, to and including April 30, 1934. These figures show the sums in the various funds as follows:

General Fund

Receipts

Balance, Dec. 31, 1933	$ 4,127.15	
Membership dues collected	14,097.00	
JOURNAL advertising	1,928.85	
Exhibit Space	160.00	
Medical Protective Company (rent)	180.00	
Subscriptions	42.40	
Refund from Cancer Committee	7.50	
Refund on telephone	1.00	
Total		$20,543.90
Disbursements		
Vouchers paid		9,730.32
Balance, April 30, 1934		$10,813.58

Legislative Fund

Receipts

Balance, Dec. 31, 1933	$ 2,260.48	
Transferred from General Fund	1,564.00	
Total		$ 3,824.48
Disbursements		
Transferred to Defense Fund	$ 2,000.00	
Federal Tax on check	.02	2,000.02
Balance, April 30, 1934		$ 1,824.46

Defense Fund

Receipts

Balance, Dec. 31, 1933	$ 97.24	
Transferred from Legislative Fund	2,000.00	
Balance, April 30, 1934		$ 2,097.24

Sinking Fund

Balance, April 30, 1934	$ 769.00

These figures show that there was a balance of $7,253.87 on hand January 1, 1934, and receipts from membership dues, advertising and other sources of income amounted to $16,416.75. During the period January 1 to April 30, 1934, there was disbursed by vouchers properly endorsed and signed by the officers, $8,166.34. This leaves the financial status at April 30 as follows:

General Fund	$10,813.58
Legislative Fund	1,824.46
Defense Fund	2,097.24
Sinking Fund	769.00
Total	$15,504.28

The President announced that unless there was objection the report of the Treasurer would be referred to the Council. It was so referred.

Dr. J. C. B Davis, Willow Springs, Chairman of the Committee on Publication, reported as follows:

REPORT OF THE COMMITTEE ON PUBLICATION

The 30th volume of THE JOURNAL was completed with the December, 1933, issue. During the twelve months of 1933 THE JOURNAL published 100 original articles and 1 special article. There were printed 44 editorials, 53 obituaries, 208 news items, 93 reports of county societies, the report of our Seventy-Sixth Annual Meeting and 6 miscellaneous articles. Forty-one reports of the Woman's Auxiliary, 2 articles on Truth About Medicine and 36 book reviews were published. There were 74 books received during the year. These books were sent to the medical libraries of St. Louis Medical Society, Jackson County Medical Society, Nodaway County Medical Society and some highly technical books were sent to the medical library of the State University.

THE JOURNAL contained 516 pages of reading matter and 330 pages of advertising, the latter earning $6,310.07. To this amount must be added $33.98 for subscriptions and $16.75 for bad debts recovered making a total of $6,360.80 actually earned by THE JOURNAL. The total cost of printing THE JOURNAL including the cost of illustrations, postage, commissions on advertising, discounts to advertisers and bad debts was $6,831.64 showing an excess of expenditure over income of $470.84.

Attached to this report is a description of the contents of THE JOURNAL month by month.

On motion of Dr. J. S. Gashwiler, Novinger, duly seconded, this report was referred to the Council.

Dr. Charles E. Hyndman, St. Louis, Chairman of the Committee on Defense, reported as follows:

REPORT OF THE COMMITTEE ON DEFENSE

STATUS OF CASES

Cases pending May 1, 1933	11
Threats pending May 1, 1933	5
New cases during the year	11
New threats during the year	0
Cases settled during the year	9
Threats which have not developed into suits during the year	5
Cases pending May 1, 1934	13
Threats pending May 1, 1934	5
Financial assistance rendered during the year	$135.10

Of the cases settled there were four verdicts for the defendant, 1 case was dismissed, 2 verdicts were for the plaintiff and 1 case was settled out of court.

This report does not accurately represent the number of malpractice suits filed in Missouri during the year as there are a great many cases that are not reported to this committee. It does indicate that most of our members carry insurance and that the cases are handled satisfactorily by the companies through the cooperation of our Councilors and individual members without the necessity of financial aid from the State Association.

This is as it should be. Every member should carry insurance if possible. However, whether insured or not insured, the services of the Defense Committee are available to all members and every effort is made to cooperate with private or company attorneys to protect the doctor against unwarranted malpractice suits and blackmail. The cooperation of the councilors and individual members has been most commendable during the last year.

On motion of Dr. J. S. Gashwiler, Novinger, duly seconded, this report was referred to the Council.

Dr. Ellis Fischel, St. Louis, Chairman of the Committee on Cancer, reported as follows:

REPORT OF COMMITTEE ON CANCER

Your Committee on Cancer has held three meetings during the last year. According to its recommendations, which were adopted by the House of Delegates last year, the Committee on Cancer in conjunction with the Committee on Postgraduate Course had to work out an educational cancer campaign throughout the state. For this purpose the state was divided into four sections; each section had its chairman and was expected to serve an assigned number of Councilor Districts of the Medical Association. The centers for these sections were chosen for their geographical convenience and were as follows: Kansas City, Dr. Earl C. Padgett, Chairman; St. Joseph, Dr. Floyd H. Spencer, Chairman; Columbia, Dr. M. Pinson Neal, Chairman; St. Louis, Dr. C. H. Neilson and Dr. Ellis Fischel, Chairmen. It was the duty of the chairmen to organize "teams" of two or three men capable of addressing lay or medical groups on the subject of cancer, cancer of the breast being the preferred title. A form letter was mailed to each of the thirty-one Councilors of the Association apprising him of the action of the House of Delegates last year and requesting his cooperation in the organization of both a lay and scientific meeting on cancer. Dry "complimentary" clinics were also offered as an inducement to interest the physicians. A few responses were received to this form letter and these were promptly followed by well organized meetings. Follow-up letters were then sent to Councilors who had not responded and these, together with some personal solicitation through members of the two committees involved, brought further responses. In all thirty-one lay meetings with a total attendance of 3718, thirty-three medical meetings with a total attendance of 1457 and ten complimentary clinics were held in twenty-four Councilor Districts reaching doctors in approximately ninety counties. In addition nineteen talks were made to groups of nurses and medical students with a total attendance estimated at 1380.

Both in number of meetings and attendance the success of this first effort of state wide education was far beyond our expectations and must be attributed to the excellent cooperation of the District Councilors, the Women's Auxiliary and to the zeal and hard work of the section chairmen and members of their teams, several of whom traveled well over two hundred miles giving two days of their time to bring their message to comparatively small audiences. The reactions of

the Councilors as evidenced by letters to the Cancer Committee, which followed the meetings, were on the whole quite favorable as to the value of the meetings, and the team members invariably reported interesting experiences.

The expense of these meetings was considerable since the Cancer Committee thought it only fair that a certain allowance per mile travel expense should be contributed to the members of the teams. However, the cost to the Missouri State Medical Association has been very slight since a large part of the expense has been met through the cooperation of the Missouri State Committee of the American Society for the Control of Cancer. This Committee in addition to contributing money has provided 9190 pamphlets for distribution.

Funds for use in cancer control work in the State of Missouri are obtained from a refund to the Missouri State Committee of the Society of 80 per cent of the annual dues of active members of the American Society for the Control of Cancer resident in Missouri. In addition to these funds an anonymous friend has contributed $350 toward the expense of this campaign.

It is the opinion of the Cancer Committee that this educational work should be continued.

On August 14, 1933, at a regular meeting of the Board of Managers of the State Eleemosynary Institutions "Mr. McReynolds moved that it was the sense of the board that the radium at Fulton be made available for treatments, but that the conditions surrounding its use be defined by Dr. Bliss, the president and the staff at the Fulton Hospital so as to be administered in such a fashion as to protect the institution against any undue burden. Seconded by Judge Taylor and carried."

Dr. M. A. Bliss then requested a meeting with the Cancer Committee to be held at State Hospital No. 1 in Fulton. This meeting took place August 30, 1933, and was attended by Dr. M. A. Bliss and Mr. W. Ed. Jameson, representing the Eleemosynary Board, Dr. R. C. Fagley, superintendent, and Dr. T. S. Lapp, representing the staff of State Hospital No. 1, the full membership of the Committee on Cancer and Dr. M. P. Neal, Columbia. The result of this meeting, as already reported in The Journal of the Missouri State Medical Association, was that the facilities of State Hospital No. 1 for the treatment of cancer patients were made available to the indigent poor of the state after proper certification as to their indigence was made by a member of the State Medical Association and a recognized social agency. Only ambulatory patients not regularly inmates of one of the state eleemosynary institutions could be received for treatment. Dr. D. A. Robnett, Columbia, consented to accept the responsibility for the operation of the tumor clinic and has given freely of his time and experience to make the clinic a success.

During the eight months since the clinic was started a total of seventy-five cases have been treated and the response of the doctors referring the cases, all of whom are members of the State Association, as well as the patients themselves speak for the need of such a clinic and the wisdom of the Eleemosynary Board in establishing it.

The Cancer Survey of the State of Missouri recommended by the Committee on Cancer and approved by the House of Delegates in 1933 has been completed. Recommendations prepared by Dr. Frank Leslie Rector, field representative, and approved by the executive committee of the American Society for the Control of Cancer, have been submitted to the Cancer Committee for study. The complete report of the survey has not yet been received. The recommendations as submitted by Dr. Rector for improved cancer service in the State of Missouri are both fundamental and far reaching. Many can be put into effect without delay. Others will of necessity require time and funds for their fulfillment. In the main, they have the unqualified endorsement of the Committee on Cancer.

This brief resumé of the activities of the Cancer Committee during the year 1933-1934 is concluded with the following recommendations which it is hoped the House of Delegates will approve.

1. That the general educational program be carried on for four more years in a manner similar to that of the last year.
2. That the tumor clinic at State Hospital No. 1 be continued as part of the activities of the Committee on Cancer.
3. That the Missouri State Medical Association in cooperation with the Committee on Cancer endorse the establishing of other cancer clinics within the state as funds become available.
4. That a close relationship between the State Board of Health, the Missouri State Medical Association and the Missouri Committee of the American Society for the Control of Cancer with the common aim of better service for cancer patients, be encouraged.
5. That the recommendations prepared by Dr. F. L. Rector be favorably received and approved.
6. That the recommendations be published in The Journal of the Missouri State Medical Association and that this Association through its Secretary express to the American Society for the Control of Cancer its appreciation and thanks for their cancer survey of the State of Missouri.

The following program of Tripartite Organization for Cancer Prevention and Control in Missouri is recommended by the American Society for the Control of Cancer:

A. Missouri State Medical Association

1. The Missouri State Medical Association, cooperating with the medical schools, should develop an educational program for the physicians of Missouri in approved methods of diagnosis and treatment of cancer and allied diseases.
2. It should cooperate with hospitals and other organizations to see that adequate facilities are availahle and competent treatment rendered to cancer patients in these institutions.
3. It should stimulate the provision of adequate laboratory facilities and trained personnel for the examination of all tumor tissues removed in the hospitals of Missouri.
4. It should stimulate the holding of more autopsies in Missouri hospitals.
5. It should stimulate its memhers promptly to refer cases which they do not care to treat to institutions and to specialists interested in such cases.
6. It should endeavor to secure better histories and records of treatment of cancer patients and to obtain more accurate causes of death on death certificates.
7. It should encourage its members to read papers on cancer subjects at local and state society meetings.
8. It should supply its members with reliable statistics of the value of early diagnosis and adequate treatment.

B. State Department of Health

1. The State Department of Health of Missouri should make surveys to determine the character and extent of the cancer problem within the state as to the facilities available for caring for such patients and the actual number of cases and deaths in a manner similar to which information about other diseases is now obtained.
2. It should compile statistics from hospital cancer records by age, sex, organ, type of lesion, and of the time elapsing between the patient's first knowledge of the disease and his seeking medical attention.
3. It should assist the Missouri State Medical Association and welfare and other organizations to make studies of the economic problems of cancer patients in Missouri.
4. In cooperation with the Missouri State Medical Association, it should stimulate the provision of proper facilities for the examination of tumor tissue in the hospitals of the state.
5. In cooperation wih the Missouri State Medical Association it should provide informative articles on the cancer problem for distribution to the laity.
6. It should estimate periodically amount and quality of cancer service given in the state on the lines laid down in the appraisal form of the American Public Health Association.
7. It should cooperate with the State Committee of the American Society for the Control of Cancer in its work of education of the public regarding early signs and symptoms of cancer and the value of early adequate treatment.

C. Missouri State Cancer Committee

1. This Committee should cooperate with the Missouri State Medical Association and the State Department of Health in activities suggested for these two organizations under this tripartite arrangement.
2. It should assist in education of the public in early signs and symptoms of cancer, the value of early diagnosis and adequate treatment, and where such services can be obtained.
3. It should teach the public the value of periodic examination as a means of detecting cancer in its early and most hopeful stage.
4. It should educate responsible individuals in Missouri to the value of adequate facilities for the diagnosis and treatment of cancer and should urge the provision of funds when and where needed to supplement existing facilities for the treatment of this disease.
5. It should cooperate with voluntary health and welfare agencies in constructive activities relating to cancer.
6. It should keep fully advised of policies of the American Society for the Control of Cancer of which it is the local representative, and should avail itself of all facilities the parent society has to offer. It should furnish the Missouri State Medical Association and the State Department of Health with educational material from the parent society and should keep the society's field representative for that territory fully advised of its activities.

On motion of Dr. J. S. Gashwiler, Novinger, duly seconded, this report was referred to the Committee on Miscellaneous Affairs.

Dr. E. J. Goodwin, St. Louis, Chairman of the Committee on Scientific Work, reported as follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work hopes the program for this Session will meet with the approval of the members. The number of requests to be on the program increases each year and the Committee was sorry to have to refuse several excellent contributions as the requests came in after the program was filled.

An innovation will be introduced in the program this year in the form of table demonstrations. These will show the procedures followed in various fields of medicine leading to a diagnosis. On Tuesday and Wednesday mornings the General Meetings will adjourn at 11:30 and the table demonstrations will be given in rooms on the Mezzanine. As the rooms are small the number in attendance must be limited. Reservations must be made at the registration desk. Tickets are free.

Two diagnostic clinics will be given as a part of the General Meetings. The Committee was fortunate in securing Dr. Walter L. Bierring, Des Moines, President-Elect of the American Medical Association, and Dr. John H. Musser, New Orleans, Vice President of the American Medical Association, to conduct these clinics. Our other guests are Dr. G. H. Ewell, Madison, Wisconsin; Dr. Charles M. Swab, Omaha, professor of ophthalmology, Creighton University School of Medicine; Dr. Dean M. Lierle, Iowa City, proprofessor of otolaryngology, State University of Iowa College of Medicine, and the Reverend Father Alphonse M. Schwitalla, S. J., Dean, St. Louis University School of Medicine.

The General Meeting on Thursday morning will again be devoted to a session on tuberculosis and in the afternoon to a session on diseases of the eye, ear, nose and throat. On Thursday morning Dr. Swab will conduct a dry clinic with demonstration of cases in ophthalmology; Dr. Lierle will demonstrate specimens of the development and anatomy of the infant's temporal bone, and Dr. Orval R. Withers, Kansas City, will demonstrate cases of nasal allergy. These clinics will be conducted on the Mezzanine of the hotel

The program is again quite full and strict adherence to the time limit for reading papers will be necessary.

On motion duly seconded, this report was referred to the Committee on Miscellaneous Affairs.

Dr. C. H. Neilson, St. Louis, Chairman of the Committee on Postgraduate Course, reported as follows:

REPORT OF COMMITTEE ON POSTGRADUATE COURSE

Your Committee begs leave to report that from May 1, 1933, to May 1, 1934, sixty-nine members were sent as speakers to thirty-seven meetings of seventeen societies and councilor districts. During the preceding year ninety-one members were sent to fifty-six meetings of twenty-three county societies and councilor districts.

We thus see that the work this year has fallen off in a minor degree. The reason for this is that perhaps the county societies and councilor districts have not asked for speakers. If the demand had been made speakers would have been sent and a better showing could have been made.

The speakers for the meetings of 1934 were sent from St. Louis, Columbia, Kansas City and St. Joseph.

The total expenditure for Postgraduate Work during the year from May 1, 1933, to May 1, 1934, was $568.23.

Many men went to the various meetings and turned in no expense account. This accounts in part for the small cost of this important work to the Missouri State Medical Association.

According to the action of the House of Delegates in 1933, the Postgraduate Committee and the Committee on Cancer of which committee Dr. Ellis Fischel is chairman were directed to work together in an effort to instruct the people and the physicians of the State of Missouri in regard to the prevalence, diagnosis and cure of cancer. Dr. Fischel in his report told you of this work. I am merely reporting the work done by the Postgraduate Committee by itself.

Your Committee begs leave to make the following suggestions:

(1) The function of the Missouri State Medical Association is primarily an educational one. This is brought about by the scientific programs at the State Meeting. Unfortunately, the number of physicians who avail themselves of these programs is but a small part of the total number of doctors in the State of Missouri. We feel, therefore, that as many as possible of the physicians of Missouri should be contacted and stimulated by teachers, specialists and scientists in ways other than by the programs of the State Medical Association held once a year. We feel that this program of the Cancer Committee and the Postgraduate Committee is of vital importance to the physicians over the entire state.

We also feel that the county societies and the councilor districts should avail themselves of the opportunity of getting in their counties and districts men from the larger centers who are only too willing to go to them and give them instructions by lectures, clinics and demonstrations.

In addition to the education of the doctors the Missouri State Medical Association has a function of educating the people in this great state. The people of the state can be educated by open meetings where the problems of hygiene and preventive medicine are discussed and can be educated by and through their doctors who are aided in keeping abreast of things by postgraduate instruction.

(2) The McAlester Foundation which was started some years ago was supposed to work in conjunction with the Postgraduate Committee. Up to the present time no demands have been made for funds or speakers from this Committee. Your Committee feels very strongly that the idea in the formation of the McAlester Foundation should be carried out in so far as possible in these depressing times and that the State of Missouri should supply a reasonable amount of money to carry out the wishes of Dr. McAlester.

(3) Your Committee also feels that the work of the Cancer Committee and the work of the Postgraduate Committee in conjunction should be continued. Most of the expenses of this work, this year, have been defrayed by the Cancer Committee. We feel that the activities of the Postgraduate Committee, the Cancer Committee and the McAlester Foundation would place Missouri in the front rank of those states who are trying to educate their doctors and the people of their state.

The committee also feels that any attempt at reducing the State dues is at this time ill advised if we wish to carry out and carry on properly in this, our great state. Eight dollars per year for state dues means for each doctor, who pays his dues, an expenditure of two cents plus per day and it does seem that this small expenditure on the part of the physicians would yield a great amount of satisfaction in that they are fulfilling the ultimate destiny of a physician.

We recognize that many physicians are having difficulty in meeting expenses. If it is true of one, it is true of all of us. It is the hope of the Postgraduate Committee that there should be no curtailment in its efforts or the efforts of the Cancer Committee and that the efforts of the McAlester Foundation should be greatly increased.

If the dues are reduced, a great curtailment in this wonderful program must be brought about.

On motion of Dr. W. M. West, Monett, duly seconded, this report was referred to the Committee on Miscellaneous Affairs.

Dr. Joseph W. Love, Springfield, Chairman of the Committee on Medical Economics, reported as follows:

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

During the last year in the realm of medical economics interest has shifted from a passionate consideration of the Reports (Final and Minority) on the Cost of Medical Care to that portion of the "new deal" set forth in certain Rules and Regulations of the Federal Emergency Relief Administration governing the provision of medical care in the home for recipients of unemployment relief.

As is well known the purport of this order is (1) to define the general scope of the medical care authorized where expenditures of Federal Emergency Relief Funds are involved, and (2) after conference between representatives of the state and/or county medical societies and the state emergency relief administration, to outline the policy, regulations, fee schedule and detailed procedures governing the provision of such service to qualified recipients in communities by members of the regular medical profession resident therein.

As the Rules and Regulations above mentioned authorized the adoption of programs based on agreements between the several state relief administrations and organized medical societies, state and/or county, the medical profession of Greene County, after advice with the Assistant Secretary of the Association who visited Springfield for conference in the matter, decided to enter into direct negotiations with the state director of relief through a special committee of the County Society.

After some unavoidable delay a program was prepared and made to adhere as closely as possible to the requirements and limitations set forth in the Regulations.

A copy of the proposed agreement was then forwarded through the county chairman of relief to the state relief director for his approval and authority to proceed with the program under the agreement as occasion might require.

As evidence that your Committee has not been inactive in attention to this matter I have ventured to insert here a brief excerpt from a letter issuing from the office of the state relief commission addressed to Senator F. M. McDavid, County Chairman of Relief, Greene County, viz.:

"Dear Sen. McDavid:

"Your letter of February 5, addressed to Mr. Crossley, enclosing a proposed agreement between this office and the Greene County Medical Society, has been received.

"First of all, I hope you will convey to Dr. Love our appreciation for the thorough-going manner in which he and the County Medical Society have gone into this topic. If we should have occasion to revise our state program we certainly will consult the document submitted from Greene County.

"(Signed) A. R. Gephart,
"Field Director."

Suffice it to say that with some minor changes in the fee schedule for obstetric care, the program for the service in Greene County was approved and adopted as submitted. I

am informed, however, by the county director of relief that up to the present time there has been little occasion for authorization of service under the agreement, and little use has been made in fact of the program thus far.

During the conference held on the occasion of the visit of the Assistant Secretary to Springfield it was agreed that he should communicate, both by correspondence and by personal visits to county societies, such details of the plan proposed for medical care in the home for indigent sick by the Federal Emergency Relief Administration, as might assist them in the formulation of agreements acceptable to the state director of relief.

In consideration of these efforts of Mr. Bartelsmeyer to render assistance to county societies, and the fact that the subject has been discussed in some form or other in the editorial columns of every number of The Journal since December last, it is believed that every member of the Association has had ample opportunity to familiarize himself with the plan sufficiently to cooperate had opportunity offered.

Mention was made in the May number of The Journal of certain supplementary work on this project contributed by the President of the Association, Dr. Allee, and the Assistant Secretary during a visit to the office of the Director of the relief commission in Jefferson City, and the organization of a special Coordinating Committee on which Dr. Allee and Mr. Bartelsmeyer acting for the State Association for the convenience of all concerned agreed to serve until after the Annual Meeting, the same being approved by the state director, Mr. Crossley, all of which was fully set forth in the May number of The Journal, and which appears to be a valuable contribution to the cause, and for which these gentlemen deserve the thanks of the Committee and the Association.

To the assistance of representatives of the Bureau of Medical Economics of the American Medical Association in drafting the Rules and Regulations governing this project is doubtless due the sympathetic attitude plainly discernible toward the regular medical profession throughout in that instrument, examples of which will doubtless suggest themselves to all.

It is believed needless to rehearse further details that appear to have been amply set forth in the columns of The Journal for the last five months.

On motion of Dr. J. S. Gashwiler, Novinger, duly seconded, this report was referred to the Committee on Miscellaneous affairs.

Dr. R. B. H. Gradwohl, St. Louis, presented the following resolution which, upon motion of Dr. John C. Morfit, St. Louis, duly seconded, was referred to the Reference Committee on Resolutions:

Resolution on Approval of Hospitals

Whereas, Definite policies are now in operation and in the process of development in various parts of the country with the object of attaining the cooperation of hospitals, clinics, medical colleges and like institutions, in observing the economic and ethical principles enunciated by component local societies in affiliation with the Missouri State Medical Association and the American Medical Associaton; and

Whereas, As a result of the promulgation of these policies by component units of the Missouri State Medical Association definite "approved lists" of hospitals, clinics, medical colleges and like institutions are properly being compiled, therefore be it

Resolved, That the Missouri State Medical Association memorialize the A. M. A., and instruct its delegates thereto, to request the A. M. A. to adopt policies by which the A. M. A shall not approve any institution for any purpose unless and until such institution shall be officially on the approved list of the component medical society or societies in the jurisdiction of which such hospital or institution is located or operates.

Dr. M. P. Overholser, Harrisonville, Chairman of the Committee on Revision of Constitution and By-Laws, reported as follows:

REPORT OF THE COMMITTEE ON REVISION OF CONSTITUTION AND BY-LAWS

Amendments to the Constitution and By-Laws have been submitted to the Committee from the St. Louis Medical Society as follows:

Amend Article 5 by striking out "(1)" and the words "and (2) the officers of the Association enumerated in Section 1 of Article 9 of this Constitution," and by adding two new sections so that when amended said Article shall read:

Article 5—House of Delegates

Section 1. The House of Delegates shall be the legislative body of the Association and shall consist of delegates elected by the component county societies.

Sec. 2. The House of Delegates shall meet for the purpose of organization at the call of the president of the Association on the first day of the annual meeting.

Sec. 3. The officers of the House of Delegates shall be a speaker and a vice speaker elected by the delegates from their body, and the Secretary of the Missouri State Medical Association who shall be without vote.

Amend Section 1, Article 9 by inserting after the word "Treasurer" the words "Speaker and Vice Speaker of the House of Delegates," so that when amended said Section 1 shall read:

Section 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, a Speaker and Vice Speaker of the House of Delegates, and twenty-nine Councilors, more or less as shall be determined by the House of Delegates from time to time.

Amend Section 2, Article 9 by inserting after the word "annually" the words "by the House of Delegates"; by inserting after the word "year" in the fourth line the words "by vote of the members of the component county societies of the Councilor Districts" and by striking out the words "the secretary and the treasurer shall be elected by the Council," so that said Section 2, Article 9 shall read:

Section 2. The officers except the Councilors shall be elected annually by the House of Delegates. The terms of the Councilors shall be for two years; one half the members of the Council shall be elected each year by vote of the members of the component county societies of the Councilor Districts. All these officers shall serve until their successors are elected and installed.

Amend Article 13 by striking out the entire section and inserting in lieu thereof a new section to read:

Article 13

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session provided that such proposed amendment shall have been presented in open meeting at the previous Annual Session, or by mail to each component society at least two months before any Annual Session, and by publication in two issues of the Missouri State Medical Journal before the annual meeting at which the proposed amendment is to be considered.

BY-LAWS

Amend Section 3, Chapter 3 by striking out the word "forty" and inserting the word "twenty," so that when amended said Section shall read:

Section 3. Twenty delegates shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Association.

Amend Section 4, Chapter 3 by striking out the word "president" and inserting the word "speaker," and by inserting after the word "resolutions" the words "on a majority vote of the House of Delegates," so that when amended said Section 4 shall read:

Section 4. From among members of the House of Delegates the Speaker shall appoint Reference Committees to which reports and resolutions on a majority vote of the House of Delegates shall be referred as follows:

Reference Committee on Amendments to the Constitution and By-Laws.

Reference Committee on Resolutions.

Reference Committee on Miscellaneous Affairs.

He shall also appoint a Committee on Credentials and such other committees as may be considered by him to be necessary.

Amend Section 9, Chapter 3 by striking out the present Section 9 and inserting a new section to read:

Section 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the ensuing year which shall have been prepared by the Council and submitted to the component county societies before January 31 of each year for the information and instructions from the component county societies to their delegates at the next annual meeting.

Amend Section 1, Chapter 4 by striking out the word "President" and inserting the words "House of Delegates" in the first line and the words "Each candidate for Councilor must be a resident of the district for which he is nominated" and by striking out the last sentence "On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House," so that when amended said Section shall read:

Section 1. The House of Delegates, on the first day of the Annual Session, shall select a committee on nominations consisting of ten delegates, no two of whom shall be from the same councilor district. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session, excepting the President-Elect who shall be nominated from the floor of the House of Delegates.

Amend Sections 5 and 6 of Chapter 4 by eliminating entirely said Sections 5 and 6.

Amend Section 1, Chapter 5 by striking out the words "and of the House of Delegates," so that when amended said Section shall read:

Section 1. The President shall preside at all meetings of the Association; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Amend Section 7, Chapter 6 by inserting after the word "year" the words "and submit a complete and detailed report to the component county medical Societies as provided in Section 9, Chapter 3," so that when amended said Section shall read:

Section 7. The Council shall provide for and superintend the issuance of all publications of the Association, including proceedings, transactions and memoirs, and shall have authority to appoint an editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association, which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, and submit a complete and detailed report to the component county Medical Societies as provided in Section 9, Chapter 3. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer.

Amend Section 1, Chapter 8 by striking out the word "eight" and inserting the word "five," so that when amended said Section 1 shall read.

Section 1. The annual dues shall be five dollars, and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues. They shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The Secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and membership. Any member whose name has not been reported for enrollment and whose dues for the current year have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported and his dues for the current year are paid.

Since amendments to the Constitution cannot be voted on until after the expiration of one year following their introduction these amendments to the Constitution will automatically lay on the table until the 1935 session.

This report was automatically referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Dr. A. R. McComas, Sturgeon, Chairman of the McAlester Memorial Foundation, reported as follows:

REPORT OF THE McALESTER MEMORIAL FOUNDATION

The Committee on the McAlester Memorial Foundation has to report that, as you know, the Memorial Foundation embraces other things besides the simple carrying of health lectures to the laity. The other things embraced in the functioning of this Foundation would require money, and that we do not have. We expected to obtain that, and probably will as time goes on, but during a depression such as has existed, but which we hope we are coming out of now, we have not been able to gather together this money. Last year your Cancer Committee began to function better when it received permission to use the radium in Hospital No. 1. They have done excellent work and are to be commended but I do not feel that we should attempt to draw speakers to any great extent so that it would interfere with the work of the Cancer Committee for the reason that the money of the State Association is limited and if all of the men who went out to speak on the cancer program had had expense accounts there would have been a larger amount shown in the report of the Postgraduate Course. That is why this Committee has not been active during the last year.

On motion of Dr. S. L. Baysinger, Rolla, duly seconded, this report was accepted.

Dr. J. F. Harrison, Mexico, Chairman of the Committee on Public Policy, reported as follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY

Your Committee has nothing to report in regard to state or local activities. There was nothing in the work of the special session of the Missouri State Legislature that required attention on the part of this Committee.

There has been unusual activity in the National Legislative program, a brief review of which will be of interest to members of the Missouri State Medical Association.

For a time there was active discussion as to whether the medical profession came within the scope of the National Industrial Recovery Act. The consensus of opinion was that since the practice of medicine is not a trade or profession it did not properly come within the purview of the NRA. The terms of agreement expired by limitation on December 31, 1933. The matter is no longer a live question.

In regard to Federal Works Administration, the United States Employes Compensation Act has been in effect since 1916 and when the Federal Civil Works Administration was established some 4000 private physicians throughout the country had been already designated or approved by the commission to treat injured Federal employes when and where United States medical officers and hospitals were not available. Obviously such designated physicians were inadequate in numbers and distribution to render the services legally required for four million Federal employes suddenly added to the Federal pay rolls.

It was proposed to the Committee on behalf of the American Medical Association that all members of the Association be thus designated or approved by the Commission without prejudice to the right of any nonmember physician to submit to the Committee evidence of his fitness to be designated or approved.

Finally the Commission and the Federal Civil Works Administration agreed to direct the state and local representatives to cooperate with local medical societies in selecting physicians in their respective communities. Compensation and death benefits were made payable only in disability or death from "traumatic injury while in performance of duty."

Hospitalization to Veterans: After the passage of the National Recovery Act approved March 20, 1933, treatment and hospitalization of veterans was limited to those suffering from diseases and injuries incurred or aggravated in line of duty in active military or naval service and veterans without means of support and incapacitated from earning a living, suffering from permanent disabilities or tuberculosis or neuropsychiatric ailments. Hospitalization and domiciliary care for nonservice connected temporary conditions were discontinued.

Since March 20, 1933, approximately one hundred bills have been introduced in Congress proposing to restore some or all of the benefits withdrawn by the National Recovery Act of March 20, 1933. Recently the Steiner-McCarron Act was passed by the United States Senate and concurred in by the lower house. This Act, in so far as it relates to hospitalization reads as follows:

> That any veteran of any war who was not dishonorably discharged, suffering from disability, disease or defect, who is in need of hospitalization or domiciliary care, and is unable to defray the necessary expenses therefor (including transportation to and from the Veterans' Administration facility), shall be furnished necessary hospitalization or domiciliary care (including transportation) in any Veterans' Administration facility, within the limitations existing in such facilities, irrespective of whether the disability, disease or defect was due to service. The statement under oath of the applicant on such form as may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses.

This bill was vetoed by the President of the United States and was then passed by more than two thirds majority of both houses of Congress and is now the law.

Fifty per cent of veterans receive nonservice disability. If the Government continues its liberal policy in this matter you can see where it will lead, if it appropriates sixteen to twenty-five millions for additional Federal hospitals. It is suggested that if the Government is going to take care of these men it would be better to have the work done by local, municipal and county hospitals.

Another point is that if the Government continues its hospital program to such an extent as in the past, there will in the future always be congressmen who will advocate putting in patients from their respective sections.

I would suggest, as Chairman of this Committee, that some member offer resolutions along this line and ask the delegates to the Missouri State Medical Association to render an expression on this subject in view of its being a great help to the Legislative Committee of the American Medical Association if such a thing were done.

On motion of Dr. Breuer, duly seconded, the first part of the report was accepted and referred to the

Council; the second portion was referred to the Committee on Resolutions.

Appointment of Committee on Nominations

The President appointed the following Committee on Nominations:

Dr. W. H. Breuer, St. James, Chairman.
Dr. J. C. Chilton, Hannibal.
Dr. L. M. Edens, Cabool.
Dr. R. M. James, Joplin.
Dr. T. W. Cotton, Van Buren.
Dr. R. W. Berry, Mexico.
Dr. J. S. Gashwiler, Novinger.
Dr. B. Landis Elliott, Kansas City.
Dr. B. K. Stumberg, St. Charles.
Dr. E. Lee Dorsett, St. Louis.
Dr. A. J. Welch, Kansas City.

On motion the House of Delegates adjourned until 3 o'clock.

Monday, May 7, 1934—Afternoon Session

The adjourned meeting of the House of Delegates convened at 3:45 p. m., Monday, May 7, with the President, Dr. W. L. Allee, in the Chair.

Dr. A. R. McComas, Sturgeon, Chairman of the Council, read the report of the Council as follows:

REPORT OF THE COUNCIL

The Executive Committee has held two meetings since the last Annual Session. At the meeting in St. Louis on August 31, 1933, the General Committee on Arrangements was appointed with Dr. W. T. Elam, St. Joseph, as chairman; Dr. Spence Redman, Platte City, and Dr. A. J. Welch, Kansas City.

The Secretary reported that the lease on our office in the Missouri Building would expire on January 31, 1934, when he hoped and expected the building would make a material reduction in the rental which now is $140. We may say here that this expectation was realized on February 1, 1934, when the rental was reduced to $100 for the next twelve months and $115 for the next succeeding twelve months making $107.50 per month for the two years. With the income from our subtenant, the Medical Protective Company, of $45 per month our net rental for 1934-35 will be $62.50 per month.

With the change in Treasurers which occurred at the 1933 Session when Dr. R. A. Woolsey, St. Louis, was elected to succeed Dr. George W. Hawkins, Salisbury, the funds of the Association were transferred from the bank at Salisbury to the Mercantile Bank and Trust Company, St. Louis. Dr. Woolsey accepted the position on the basis of a dollar a year salary. Coincident with Dr. Woolsey's election as Treasurer, the Secretary in cooperation with the Treasurer devised a system of paying out moneys by voucher check instead of the personal signature of the Treasurer. In order to safeguard the funds as far as possible the voucher check requires the signature of the President, the signature of the Secretary or the Assistant Secretary, and the signature of the Treasurer before the bank will honor any checks. The funds are further safeguarded by the signature of the bookkeeper who signifies that the sum to be paid out has been entered in the books. In view of these safeguards against the improper withdrawal of funds from the treasury the Committee decided that the bond of the Treasurer in the sum of $20,000 at a premium of $50 was not necessary.

The budget for 1933 was adopted to carry over until the next meeting of the Executive Committee in 1934 because the audit of the books for 1933 could not be completed before March, 1934.

The annual meeting of the Council, scheduled for November each year, was postponed on account of the lack of funds to pay for the attendance at the meeting.

At the request of the Committee on Cancer the Executive Committee approved a cancer campaign throughout the state.

The Committee approved payment to the Jackson County Medical Society of $200 to be applied upon the expense of invited guest speakers at the meetings of the Jackson County Medical Society in lieu of Postgraduate speakers from our Association.

Dr. J. C. Brown, Lewistown, an honor member of Lewis County, was approved for affiliate fellowship with the American Medical Association.

The American Medical Association recommended the appointment of a standing committee on mental health in the constituent state associations and the component county medical societies. On motion it was decided that this recommendation be referred to the Council with the recommendation that such a committee be appointed with the number of the members of the committee to be designated by the Council.

The Secretary informed the Committee of a proposed by-law of the St. Louis Medical Society as follows:

> "Membership in the St. Louis Medical Society may be maintained by active and junior members without affiliation with the Missouri State Medical Association and the American Medical Association by payment of St. Louis Medical Society dues less the State assessment (dues) but such members shall not be entitled to legal defense, to receive The State Journal, to vote for delegates or take part in any of the proceedings of the State Medical Association."

On motion the Secretary was instructed to inform the St. Louis Medical Society that such a by-law is in conflict with the letter and spirit of the Constitution and By-Laws of the State Medical Association and the American Medical Association and therefore could not be approved by the Executive Committee.

The revised budget for 1934 was proposed and adopted as follows:

Salaries (Office and Journal)	$10,600.00
Journal	6,600.00
Legislation	500.00
Defense	1,000.00
Postage	400.00
Postgraduate Work	1,000.00
Printing and Stationery	600.00
Traveling Expenses of Secretary and Assistant Secretary	1,100.00
Telephone and Telegraph	500.00
Rent of Offices and Light	1,300.00
Meetings, Annual Session, Council and Executive Officers	1,500.00
General Expense and Miscellaneous Expense	600.00
Total	$25,700.00

The report of the auditor was presented, examined in detail and the recommendations approved.

The resignation of Dr. Ralph L. Thompson, St. Louis, as Councilor of the 20th District was submitted. Dr. Alee moved, seconded by Dr. C. T. Ryland, Lexington, that the resignation be accepted with sincere regrets. Motion carried. President Allee announced Dr. Charles E. Hyndman, St. Louis, as his selection to succeed Dr. Thompson. This was unanimously approved by the Committee.

A transfer of $2,000 from the Legislative Fund to the Defense Fund was approved.

Dr. J. C. Morfit, St. Louis, was present by invitation of the Chairman and spoke.

On motion of Dr. A. R. McComas, duly seconded, the report of the Council was adopted.

REPORT OF THE COMMITTEE ON MISCELLANEOUS AFFAIRS

This Committee endorses the report of the Postgraduate Committee. In making this endorsement, it begs to suggest to the Postgraduate Committee that a limit be placed upon the number of men being sent to each county society during each year. An oversupply of outside men curtails the activity of the local men and at the same time is possibly not fair to other county societies.

This Committee endorses the report of the Committee on Medical Economics as read before the meeting of the House of Delegates at its morning session this date.

This Committee endorses the report of the Committee on Cancer and also the report of the Cancer Survey of the State of Missouri as made under the direction of the American Society for the Control of Cancer by Dr. Frank Leslie Rector.

Dr. L. R. Sante, St. Louis, offered an amendment to the By-Laws as follows:

> Amend Section 1, Chapter 8, of the By-Laws of the Missouri State Medical Association by striking out the word "eight" and inserting in lieu thereof the word "five," and by inserting after the first sentence the words "Provided further that no member shall be required to pay any annual dues to the State Association after he reaches the age of sixty-eight (68) years, but shall be continued as an active member of the Association, with all the privileges of Active membership in the Association," and by striking out the first word "They" in the second sentence or paragraph and inserting in lieu thereof the word "Dues" so that when amended, said section shall read:
>
> Section 1. The annual dues shall be five dollars, and shall be levied per capita on the members of the component societies of the Association, provided that for the first

four years subsequent to graduation the annual dues shall be one half of the regular dues; and, provided further, that no member shall be required to pay any annual dues to the State Association after he reaches the age of sixty-eight (68) years, but shall be continued as an active member of the Association with all the privileges of Active membership in the Association.

Dues shall be payable on or before January first of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The Secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and membership. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the Secretary of the Association on or before April first, shall stand suspended until his name is properly reported and his dues for the current year are paid.

Dr. H. L. Kerr, Crane, offered an amendment to the By-Laws as follows:

Amend Section 2, Chapter 3, by adding after the word "Alternate" in the 7th line, the words, "from each county of which it is composed," so that when amended Section 2 shall read:

Section 2. Each component county society shall be entitled to send each year one delegate or one corresponding alternate to the House of Delegates for each fifty full paid members or fraction thereof in this Association; provided, however, that each county society shall be entitled to at least one delegate or one corresponding alternate from each county of which it is composed.

These were referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Dr. C. P. Dyer, St. Louis, offered the following resolution on behalf of the St. Louis County Medical Society:

Whereas, In the humane and generous efforts of our people to help and relieve the sick, the poor and unfortunate, there has arisen an evil, common to the knowledge of the medical fraternity and to those who conduct and those who give their financial support to our civic, corporate, sectarian and private hospitals and clinics, in that many apply to them for, and, through concealment or misrepresentation, unworthily receive free medical, surgical and hospital service for which they are financially able to pay, wholly or in part, and who are thereby casting upon such free agencies, and those who conduct and support them, an unjust and, many times, embarrassing burden, and also depriving those of our profession who generously give of their time and skill to aid such free agencies of a reasonable compensation for services rendered to such applicants, and,

Whereas, We feel that there is a pressing necessity, on the part of those who conduct such free agencies and of the members of our own profession, for cooperation between them in an effort to eliminate, so far as practicable, this growing evil and injustice to the end that they and members of the medical profession may mutually receive just remuneration for the services so rendered to such applicants. Now, therefore, be it

Resolved, That we, the Missouri State Medical Associates, invite and urge all such free agencies to unite in a sincere and practical effort to weed out the unworthy by the adoption and conscientious use of a uniform form of questionnaire, requiring all applicants for free service to answer fully and in writing over their signatures certified by a Notary or public officer the questions to be propounded therein, and to be approved by some physician in good standing familiar with the facts in order to determine whether the applicant's financial condition is such as to justify the giving of such services without compensation. Be it further

Resolved, That the Secretary of the Missouri State Medical Association be, and hereby is, directed to mail a copy of this resolution to every hospital and clinic, whether State, County or City, sectarian or private corporated or unincorporated in the State of Missouri giving free service, whose address is known or can be ascertained by him, enclosing therewith a copy of the questionnaire approved by the State Convention and accompanied by a letter requesting the recipient of each to acknowledge receipt by letter to the Secretary of the Association, and stating whether they approve the use of the questionnaire and are willing or unwilling to require it of their applicants for free service; that the Secretary also furnish a copy of this resolution and of the questionnaire to the publishers of the Missouri State Medical Journal, and, as the answers are received, a list of those answering and whether that answer be yes or no, be published in said Journal, for the information of the members of the medical profession of the State.

Moved by Dr. Dyer that this resolution be adopted, seconded by Dr. R. B. Denny, Creve Coeur, and upon approval of the Reference Committee on Resolutions, carried.

Dr. B. Landis Elliott, Kansas City, introduced a resolution on instruction of the Jackson County Medical Society requesting that the dues be lowered from $8 to $5.

This was referred to the Committee on Amendments to the Constitution and By-Laws.

Dr. Elliott introduced the following resolution at the request of the Jackson County Medical Society which was referred to the Committee on Resolutions.

Resolution on Giving of Medical Testimony

The following resolution was unanimously approved by the Executive Council, Jackson County Medical Society, May 1, and the delegates are requested to present same to the Missouri State Medical Association at the Annual Meeting at St. Joseph, May 7 to 10.

Whereas, The law vests in the trial court authority, in its discretion and in the furtherance of justice, to appoint unbiased and disinterested physicians to make physical examinations of plaintiffs in personal injury damage suits, and

Whereas, It is unbecoming and degrading to the medical profession to ask its members to come into court with the avowed purpose of giving testimony on both sides of a given case at issue, thus pitting the veracity of one physician against the veracity of another, each biased on behalf of the side employing him, and

Whereas, Such testimony has frequently been of such a nature as to reflect upon the character of the physicians and the desire of the courts to dispense justice, therefore be it

Resolved, That it is the sense of this meeting that a recommendation be made to the judicial authorities of this State and to the State Bar Association setting forth our opinion in the matter and request that steps be taken to encourage, and remind the courts as to the discretionary powers vested in them to the end that justice may be served and the legal and medical fraternities saved from a degrading practice which at times amounts to scandal and dishonesty.

REPORT OF THE COMMITTEE ON RESOLUTIONS

The resolution submitted by the Committee on Medical Economics was considered and approved with the following amendment.

Amendment: Any institution failing of approval of the Society or Societies concerned shall have the right of appeal to and hearing before the proper Committee of the A. M. A.

Your Committee further recommends the adoption of the following resolutions as requested by the Committee on Public Policy:

Whereas, The Missouri State Medical Association believing that recent legislation by the Congress of the United States known as the Steiner-McCarron Act which provides for hospitalization and domiciliary care of United States' Veterans with nonservice disabilities is economically unsound and unnecessary, and

Whereas, The recent survey shows that there are on the average more than two hundred thousand vacant hospital beds daily in private, municipal and other hospitals in the United States, and

Whereas, Further expense on the Government in the construction and maintenance of more hospitals for nonservice disabilities is an injustice to the taxpayer and a radical trend toward state medicine, therefore be it

Resolved, That the Missouri State Medical Association go on record as opposed to the further construction of hospitals and care of nonservice disabilities by the United States Government and be it further

Resolved, That hospitalization of patients with service disability be in local, municipal or county hospitals in those instances where facilities in veterans' hospitals are inadequate.

On motion of Dr. H. Unterberg, St. Louis, seconded by Dr. E. Lee Dorsett, St. Louis, this report was adopted.

Dr. J. E. Musgrave, Excelsior Springs, invited the Association to meet in Excelsior Springs in Clay County in 1935, and on vote that city was chosen.

The House of Delegates adjourned.

Wednesday, May 9, 1934—Afternoon Session

The House of Delegates convened at 3:45 p. m., Wednesday, May 9, with the President, Dr. W. L. Allee, Eldon, in the Chair.

On motion, duly seconded, the reading of the minutes of the last meeting was dispensed with.

ELECTION OF OFFICERS

Nomination of President-Elect

Dr. A. J. Welch, Kansas City, nominated Dr. E. Lee Miller, Kansas City, for President-Elect.

Dr. W. H. Minton, St. Joseph, nominated Dr. Daniel Morton, St. Joseph, for President-Elect.

The ballot was cast and on count Dr. E. Lee Miller received 51 votes, Dr. Daniel Morton 32.

The President announced that Dr. E. Lee Miller, Kansas City, had been elected President-Elect. Dr. W. H. Minton, St. Joseph, moved that the vote for Dr. Miller be made unanimous. This motion was duly seconded and carried.

The President-Elect was escorted to the platform by Drs. A. J. Welch, Kansas City, and W. T. Elam, St. Joseph.

Dr. E. Lee Miller, Kansas City: Mr. President and members of the Missouri State Medical Association: All my life I have seemed to have been rewarded by my friends with confidence and honors beyond that which I deserve. I want to thank my friends. I did not come to this meeting expecting this honor at all; it is as much a surprise to me as it must be to you.

I want to tell you how I stand. I acknowledge and pledge myself to the Law of Hippocrates. I believe in the practice of medicine as it should be practiced. My grandfather was a country doctor in a town of eighty; I was raised in a town of one thousand by a father who was a country doctor. I know all of the vicissitudes of the man who practices in a small town, and I know all the turmoil and troubles of the man who practices in a city, but I subscribe to one thing—viz.: to those things that are good for medicine, and I know if they are good for you they are good for me, and I pledge myself to do all I can for the best interests of the Missouri State Medical Association and in bringing to pass the things that will have to be accomplished during the administration when I shall occupy the Chair. I thank you very, very much.

Dr. W. H. Breuer, St. James, Chairman of the Committee on Nominations, submitted the following report:

Report of the Committee on Nominations

For Vice Presidents: Dr. D. S. Conley, Columbia; Dr. F. G. Mays, Washington, and Dr. U. J. Busiek, Springfield.

For delegates to the American Medical Association: Delegate, Dr. W. H. Breuer, St. James; alternate, Dr. E. H. Skinner, Kansas City. Delegate, Dr. A. R. McComas, Sturgeon; alternate, Dr. H. L. Kerr, Crane. Delegate, Dr. W. M. West, Monett; alternate, Dr. A. H. Marshall, Charleston.

For Councilors:

1st District, O. C. Gebhart, Oregon.
3rd District, J. C. Crockett, Stanberry.
5th District, J. R. Bridges, Kahoka.
7th District, Walter D. Pipkin, Monroe City.
9th District, A. R. McComas, Sturgeon.
11th District, J. H. Timberman, Chillicothe.
13th District, A. J. Welch, Kansas City.
15th District, L. J. Schofield, Warrensburg.
17th District, Guy Titsworth, Sedalia.
19th District, J. S. Summers, Jefferson City.
20th District, C. H. Neilson, St. Louis.
21st District, N. W. Jarvis, Festus.
23rd District, J. B. Luten, Caruthersville.
25th District, P. S. Tate, Farmington.
27th District, J. C. B. Davis, Willow Springs.
29th District, R. M. James, Joplin.
31st District, H. A. Lowe, Springfield.

Dr. R. M. James, Joplin, moved and the motion was duly seconded and carried that the officers mentioned in the report of the Committee on Nominations be declared elected as officers of the Association.

Dr. C. T. Ryland, Lexington, was installed as President, and made the following appointments to standing committees:

J. E. Stowers, Kansas City, Committee on Scientific Work.
M. Pinson Neal, Columbia, Committee on Postgraduate Work.
W. L. Allee, Eldon, Committee on Public Policy.
O. B. Zeinert, St. Louis, Committee on Defense.
C. A. Good, St. Joseph, Committee on Medical Education and Hospitals.
Ellis Fischel, St. Louis, Committee on Cancer.
Morris B. Simpson, Kansas City, Committee on Revision of Constitution and By-Laws.
E. L. Johnston, Concordia, Committee on Medical Economics.
M. A. Bliss, St. Louis, Committee on Publication.

Dr. W. H. Breuer, St. James, moved that the names submitted to the House of Delegates by the incoming President be approved. Motion seconded and carried.

Dr. Frank G. Nifong, Columbia, Chairman of the Reference Committee on Amendments to the Constitution and By-Laws, reported as follows:

REPORT OF THE REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

If you will permit a little preamble of explanation by the Committee we will be pleased. Sometimes our committees have more or less difficulty and their functioning is made difficult on account of misunderstanding, and according to the concept of one of our distinguished deans of a medical school in St. Louis, it seems to be a very wise and sane thing in these parlous times when you are not sure about what you are going to do, to do nothing. In other words, do not rock the boat too much. It is not necessary for us in our government of medicine and medical affairs to experiment to the extent that some other things might need. Ours is a very old and honorable profession and we have many landmarks to guide us, and the safe and sane way is the proper way.

Before I read this report I wish to express the appreciation of this Committee for the helpful way in which every one has cooperated with us, the non-contentious way in which they have cooperated. In fact, the harmony has been complete and fine. The old ritual which so aptly expresses it, applies here—no contention exists. No contention should ever exist, except perhaps that emulation as to who best can serve.

The several By-Laws should be considered each one as an entity to understand what they mean.

> Amend Section 3, Chapter 3, by striking out the word "forty" and inserting the word "twenty," so that when amended said section shall read:
>
> Section 3. Twenty delegates shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Association.

Your Committee recommends that this amendment be not adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 3, Chapter 3, failed of adoption.

> Amend Section 4, Chapter 3, by striking out the word "President" and inserting the word "Speaker" and by inserting after the word "resolutions" the words "on a majority vote of the House of Delegates," so that when amended said Section shall read:
>
> Section 4. From among members of the House of Delegates the Speaker shall appoint Reference Committees to which reports and resolutions on a majority vote of the House of Delegates shall be referred as follows:
>
> Reference Committee on Amendments to the Constitution and By-Laws.
> Reference Committee on Resolutions.
> Reference Committee on Miscellaneous Affairs.
>
> He shall also appoint a Committee on Credentials and such other committees as may be considered by him to be necessary.

Your Committee recommends that this amendment be not adopted.

Upon motion of Dr. Nifong, duly seconded, the amendment to Section 4, Chapter 3, failed of adoption.

> Amend Section 9, Chapter 3, by striking out the present Section 9 and inserting a new section to read:
>
> Section 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the ensuing year which shall have been prepared by the Council and submitted to the component county societies before January 31 of each year for the information and instructions from the component county societies to their delegates at the next annual meeting.

Your Committee recommends that this amendment be changed to read as follows:

Section 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the ensuing year which shall have been prepared by the Council and submitted to the component county societies by publication in THE JOURNAL before March 31 of each year.

Your Committee recommends that this amendment to the amendment be adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 9, Chapter 3, was adopted as amended.

Amend Section 1, Chapter 4, by striking out the word "President" and inserting the words "House of Delegates" in the first line and the words "Each candidate for Councilor must be a resident of the district for which he is nominated" and by striking out the last sentence "On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House," so that when amended said Section shall read:

Section 1. The House of Delegates on the first day of the Annual Session, shall select a committee on nominations consisting of ten delegates, no two of whom shall be from the same Councilor District. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session, excepting the President-Elect who shall be nominated from the floor of the House of Delegates.

Your Committee recommends that this amendment be not adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 1, Chapter 4 failed of adoption.

Amend Sections 5 and 6, Chapter 4, by eliminating entirely said Sections 5 and 6.

Your Committee recommends that this amendment be not adopted.

On motion of Dr. Nifong, duly seconded, the amendment eliminating Sections 5 and 6, Chapter 4 failed of adoption.

Amend Section 1, Chapter 5, by striking out the words "and of the House of Delegates," so that when amended said Section shall read:

Section 1. The President shall preside at all meetings of the Association; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such times as may be arranged and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies and in making their work more practical and useful.

Your Committee recommends that this amendment be not adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 1, Chapter 5, failed of adoption.

Amend Section 7, Chapter 6, by inserting after the word "year" the words "and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter 3," so that when amended said Section shall read:

Section 7. The Council shall provide for and superintend the issuance of all publications of the Association, including proceedings, transactions and memoirs, and shall have authority to appoint an editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter 3. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer.

Your Committee recommends that this amendment be adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 7, Chapter 6, was adopted.

Amend Section 1, Chapter 8, by striking out the word "eight" and inserting the word "five," so that when amended said Section 1 shall read:

Section 1. The annual dues shall be five dollars and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues. They shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to THE JOURNAL for one year. The Secretary of each component society shall cause to be collected and shall forward to the office of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and membership. Any member whose name has not been reported for enrollment and whose dues for the current year have not been remitted to the Secrtary of this Association on or before April 1 shall stand suspended until his name is properly reported and his dues for the current year are paid.

Your Committee recommends that this amendment be not adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 1, Chapter 8, failed of adoption.

The following amendment was introduced by Dr. R. L. Sante, St. Louis:

Amend Section 1, Chapter 8, of the By-Laws of the Missouri State Medical Association by striking out the word "eight" and inserting in lieu thereof the word "five," and by inserting after the first sentence the words "Provided further that no member shall be required to pay annual dues to the State Association after he reaches the age of sixty-eight (68) years, but shall be continued as an active member of the Association, with all the privileges of Active membership in the Association," and by striking out the first word "They" in the second sentence or paragraph and inserting in lieu thereof the word "Dues" so that when amended, said section shall read:

Section 1. The annual dues shall be five dollars, and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues; and, provided further, that no member shall be required to pay annual dues to the State Association after he reaches the age of sixty-eight (68) years, but shall be continued as an active member of the Association with all the privileges of Active membership in the Association.

Dues shall be payable on or before January first of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to THE JOURNAL for one year. The secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and members. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the secretary of the Association on or before April first shall stand suspended until his name is properly reported and his dues for the current year are paid.

Your Committee recommends the adoption of this amendment after restoring the word "eight" in place of the word "five."

Dr. J. Milton Singleton, Kansas City, moved to amend the amendment by deleting the clause "and, provided further, that no member shall be required to pay annual dues to the State Association after he reaches the age of sixty-eight (68) years, but shall be continued as an active member of the Association." Seconded and carried.

Dr. Nifong moved that the amendment as amended be adopted. Seconded and carried.

The following amendment was introduced by Dr. H. L. Kerr, Crane:

Amend Section 2, Chapter 3, by inserting after the word "Association" the words "on December 31 of the previous year" so that, when amended, said section shall read:

Section 2. Each component county society shall be entitled to send each year one delegate or one corresponding alternate to the House of Delegates for each fifty full-paid members or fraction thereof in the Associa-

tion on December 31 of the previous year; provided however, that each county society shall be entitled to at least one delegate or one corresponding alternate.

Your Committee recommends that the amendment be changed so that after the word alternate in the last line the following words be added "from each county of which it is composed" be inserted so that when amended the Section shall read:

Section 2. Each component county society shall be entitled to send each year one delegate or one corresponding alternate to the House of Delegates for each fifty full paid members or fraction thereof in the Association on December 31 of the previous year; provided, however, that each component society shall be entitled to at least one delegate or one corresponding alternate from each of the counties of which it is composed.

Your Committee recommends that the Section be adopted.

On motion of Dr. Nifong, duly seconded, the amendment to Section 2, Chapter 3, was adopted.

The amendments to the Constitution were laid over for one year.

On motion of Dr. Frank G. Nifong, Columbia, seconded by Dr. W. H. Breuer, St. James, the report of the Reference Committee as a whole was adopted.

Dr. F. G. Mays, Washington, as chairman of the Committee on Resolutions, moved the adoption of the resolution offered by Dr. B. Landis Elliott, Kansas City, in regard to giving medical testimony. Motion was seconded and carried.

On motion the House of Delegates adjourned *sine die*.

MEETING OF THE COUNCIL

Crystal Room, Robidoux Hotel

Monday, May 7, 1934—First Session

The first meeting of the Council convened following the adjournment of the House of Delegates, Monday, May 7, 1934, the Chairman, Dr. Arthur R. McComas, Sturgeon, presiding. Roll call showed the following Councilors present:

1st District..... O. C. Gebhart, Oregon
2nd District..... W. T. Elam, St. Joseph
4th District..... J. B. Wright, Trenton
6th District..... J. S. Gashwiler, Novinger
7th District..... Walter D. Pipkin, Monroe City
8th District..... B. Kurt Stumberg, St. Charles
9th District..... Arthur R. McComas, Sturgeon
10th District..... D. A. Barnhart, Huntsville
11th District..... J. H. Timberman, Chillicothe
12th District..... Spence Redman, Platte City
13th District..... A. J. Welch, Kansas City
14th District..... W. B. Braecklein, Higginsville
15th District..... L. J. Schofield, Warrensburg
17th District..... Guy Titsworth, Sedalia
18th District..... E. C. Shelton, Eldon
19th District..... J. S. Summers, Jefferson City
20th District..... Charles E. Hyndman, St. Louis
23rd District..... J. B. Luten, Caruthersville
24th District..... T. W. Cotton, Van Buren
25th District..... P. S. Tate, Farmington
26th District..... W. H. Breuer, St. James
27th District..... J. C. B. Davis, Willow Springs
28th District..... W. M. West, Monett
29th District..... R. M. James, Joplin
30th District..... R. B. Denny, Creve Coeur
31st District..... H. A. Lowe, Springfield

Dr. A. R. McComas, Sturgeon, read the Report of the Executive Committee of the Council which on motion of Dr. W. H. Breuer, St. James, was accepted and made, with additions, the report of the Council to the House of Delegates.

Dr. A. R. McComas, Sturgeon, chairman, appointed the Auditing Committee as follows: Dr. D. A. Barnhart, Huntsville; Dr. J. S. Gashwiler, Novinger, and Dr. R. M. James, Joplin.

Upon recommendation of the Reference Committee Dr. W. T. Elam, St. Joseph, moved the adoption of the President's recommendation of the formation of a consulting publicity bureau. Seconded and carried.

Upon motion of Dr. W. H. Breuer, St. James, duly seconded, the President's recommendation of a cooperative medico-legal committee was approved.

On motion of Dr. Charles E. Hyndman, St. Louis, duly seconded, the Secretary's report was adopted.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the Treasurer's report was referred to the Auditing Committee.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the report of the Committee on Publication was adopted.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the report of the Committee on Defense was adopted.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the report of the Committee on Public Policy was adopted.

Dr. W. T. Elam, St. Joseph: I would like to move a vote of thanks to Dr. Herman Pearse for furnishing much historical information in regard to the activities of the last twenty-eight years of the Association and for his work in the Legislature.

Motion seconded and carried by rising vote.

The hyphenation of the following counties was approved:

Crawford, Dent and Phelps.
Grundy and Daviess.
St. Francois-Iron-Madison-Washington and Reynolds.

The following changes of counties in districts were approved:

Daviess from the 12th District to the 4th District.
Schuyler from the 5th District to the 6th District.

The plan, formerly in use, of each county in a hyphenation to retain its privilege of sending a delegate to the Annual Session was approved.

On motion, the Council adjourned.

Wednesday, May 9, 1934—Second Meeting

The second meeting of the Council convened May 9 following the final meeting of the House of Delegates, the Chairman, Dr. A. R. McComas, Sturgeon, presiding.

The election of officers for 1934-1935 resulted in the election of the following:

Chairman of the Council, Dr. A. R. McComas, Sturgeon.

Vice Chairman of the Council, Dr. W. H. Breuer, St. James.

Treasurer, Dr. R. A. Woolsey, St. Louis.

Secretary-Editor, Dr. E. J. Goodwin, St. Louis.

Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis.

Executive Committee, Dr. A. R. McComas, Sturgeon, Chairman; Dr. W. H. Breuer, St. James, Vice Chairman; Dr. C. H. Neilson, St. Louis.

Secretary of the Council, Dr. E. J. Goodwin, St. Louis.

On motion of Dr. H. A. Lowe, Springfield, the date of the annual meeting of the Council was left to the discretion of the Executive Committee.

Dr. D. A. Barnhart, Huntsville, read the report of the Auditing Committee.

REPORT OF THE AUDITING COMMITTEE

We, the Auditing Committee, beg to report that we have carefully audited the record of receipts and disbursements of

the Missouri State Medical Association for the year ending December 31, 1933, and certify them to be correct and well kept.

On motion of Dr. B. K. Stumberg, St. Charles, duly seconded, the report was adopted.

On motion the Council adjourned *sine die.*

MINUTES OF THE GENERAL MEETING

Crystal Room, Robidoux Hotel, St. Joseph

Tuesday, May 8, 1934—Morning Session

The scientific sessions were held in the Crystal Room of the Robidoux Hotel, the first convening at 8:15 a. m., Tuesday morning, May 8, with the President, Dr. W. L. Allee, Eldon, in the Chair.

Members and guests presented addresses as follows:

Dr. W. L. Allee, Eldon, Address of the President, "In Defense of Organized Medicine."

Dr. C. T. Ryland, Lexington, Address of the President-Elect, "Medical Leadership."

Dr. E. Lee Dorsett, St. Louis, "Ectopic Pregnancy: Diagnosis as to Location of Pregnancy in the Tube."

Dr. A. Glenn Davis, Kirkwood, "Tertian Malaria With Unusual Type of Skin Manifestations."

Dr. John H. Musser, New Orleans, Vice President, American Medical Association, "The Treatment of Diseases of the Blood: With Diagnostic Clinic."

Dr. Fred Emmert, St. Louis, "Iodine Reaction in the Early Diagnosis of Cancer of the Cervix."

Dr. Guy D. Callaway, Springfield, "Fibroma of the Small Intestine With Intussusception."

Dr. F. G. Thompson, Jr., St. Joseph, "Operative Treatment of Esophageal Diverticulae."

Dr. W. A. Myers, Kansas City, "Diaphragmatic Hernia With Special Reference to Esophageal Hiatus Hernia."

Tuesday, May 8, 1934—Afternoon Session

Dr. Julius Jensen, St. Louis, "Medical Aspects of Thyroidectomy."

Dr. Duff S. Allen, St. Louis, "Thyroidectomy for Organic Heart Disease."

Dr. J. Curtis Lyter, St. Louis, "A Working Basis for the Therapeutics of Angina Pectoris."

Dr. E. J. Schisler, St. Louis, "Blood Pressure and When It Can Be Called Malignant."

Dr. Edwin C. Ernst, St. Louis, "The Roentgenological Aspect of Silicosis."

Dr. B. L. Myers, Kansas City, "Chronic Appendicitis."

Drs. J. M. McCaughan and J. H. Hershey, St. Louis, "Surgery of the Autonomic Nervous System. I. The Effect of Parasympathetic Denervation on the Rectum and Colon (Experimental Megacolon). II. The Effect of Sympathetic and Parasympathetic Denervation of the Urinary Bladder."

Dr. Herbert J. Rinkel, Kansas City, "Skin Testing in Allergy."

Dr. Lee Petit Gay, St. Louis, "The Acute Allergic Abdomen."

Dr. Otto Wilhelmi, St. Louis, "Demonstration and Interpretation of Urographic Shadows."

Tuesday, May 8, 1934—Evening Session

Dr. Walter L. Bierring, Des Moines, Iowa, President-Elect, American Medical Association, "The Educational Function of the American Medical Association."

Dr. John H. Musser, New Orleans, Louisiana, Vice President, American Medical Association, "Diet in Disease."

Rev. Father Alphonse M. Schwitalla, S. J., St. Louis, Dean, St. Louis University School of Medicine, "The Physician in the Life of the Nation."

Wednesday, May 9, 1934—Morning Session

Dr. T. L. Howden, St. Joseph, "The Treatment of the Underprivileged Diabetic."

Dr. Emmett P. North, St. Louis, "What the General Practitioner Should Know About Prevention of Eye Diseases."

Dr. R. B. H. Gradwohl, St. Louis, "The Blood Platelet Count and Postoperative Venous Thrombosis."

Dr. Walter L. Bierring, Des Moines, Iowa, President-Elect, American Medical Association, "Coronary Artery Disease: With Diagnostic Clinic."

Dr. G. H. Ewell, Madison, Wisconsin, "Carcinoma of the Prostate."

Dr. David B. Stutsman, St. Louis, "Chronic Prostatitis: Effects of Treatment on the Prostatic Urethra With Present-Day Fulguration and Resection."

Dr. D. K. Rose, St. Louis, "Bladder Catheterization: Its Benefits and Dangers in Prostatic and Urogenic Obstruction."

Dr. W. K. McIntyre, St. Louis, "Pararectal Fistula."

Dr. G. Wilse Robinson, Kansas City, "The Neurotic —A Challenge," read by title.

Dr. E. V. Mastin, St. Louis, "Management of Hyperthyroidism."

Wednesday, May 9, 1934—Afternoon Session

Dr. Wm. J. Stewart, Columbia, "Abduction Traction Treatment of Congenital Dislocated Hip."

Dr. M. Pinson Neal, Columbia, "Experimental Production of Fat (Pancreatic) Necrosis."

Dr. E. H. Skinner, Kansas City, "Analytical Observations Upon Missouri Methods of Treatment and Control of Tuberculosis, Insanity and Cancer."

Dr. James R. McVay, Kansas City, "Diagnosis and Treatment of Perinephritic Abscess."

Dr. Neil S. Moore, St. Louis, "Transurethral Prostatotomy."

Dr. W. M. Ketcham, Kansas City, "Practical Points in Endocrine Diagnosis and Treatment for the General Practitioner."

Dr. Albert S. Welch, Kansas City, "Amebiasis."

Thursday, May 10, 1934—Morning Session

The Thursday morning session on Tuberculosis convened at 9:00 a. m., Dr. George H. Hoxie, Kansas City, presiding.

The following papers were presented:

Dr. Herbert L. Mantz, Kansas City, "The Diagnosis of Primary (Childhood) Tuberculosis."

Dr. Harry Berger, Kansas City, "Treatment of Childhood Tuberculosis."

These two papers were discussed by Drs. Sam Snider, Kansas City; R. M. Waller, St. Joseph; George H. Hoxie, Kansas City, and Herbert L. Mantz, Kansas City, closing.

Dr. James L. Mudd, St. Louis, "The Surgical Aspects of Pulmonary Tuberculosis."

Dr. Andrew Henske, St. Louis, "The Influence of Pneumothorax Treatment on Prognosis."

These two papers were discussed by Drs. Wm. Buckingham, Kansas City; Sam Snider, Kansas City, and James L. Mudd and Andrew Henske, St. Louis, closing.

Dr. H. I. Spector, St. Louis, "A Municipal Program for the Care of Tuberculosis."

Discussed by Drs. Herbert L. Mantz, Kansas City; Oscar B. Hall, Warrensburg; Sam Snider, Kansas City; J. B. Stokes, Mount Vernon; George H. Hoxie, Kansas City; C. T. Ryland, Lexington, and H. I. Spector, St. Louis, closing.

Thursday, May 10, 1934—Afternoon Session

The Thursday afternoon session on Diseases of the Eye, Ear, Nose and Throat convened at 2 o'clock, Dr. John Green, St. Louis, presiding.

The following papers were presented:

Dr. Charles M. Swab, Omaha, Nebraska, "The Ocular Complications of Gonorrhea."

Discussed by Drs. A. N. Lemoine, Kansas City; E. J. Curran, Kansas City; John Green, St. Louis, and Charles M. Swab, closing.

Dr. Orval R. Withers, Kansas City, "Nasal Allergy: A Consideration of Clinical Forms and Complications."

Discussed by Drs. French K. Hansel, St. Louis; W. P. Wherry, Omaha, Nebraska; O. S. Gilliland, Kansas City, and Orval R. Withers, closing.

Dr. Avery A. Drake, Rolla, "Yeast-Like Fungus Infection of the Conjunctiva."

Discussed by Drs. John Green, St. Louis; W. P. Wherry, Omaha, Nebraska; A. N. Lemoine, Kansas City, and Avery A. Drake, closing.

The minutes of the 1933 session on Diseases of the Eye, Ear, Nose and Throat were read by the secretary, Dr. W. E. Keith, Kansas City, and approved.

The following officers for this session were elected for the ensuing year: Chairman, Dr. L. Robert Forgrave, St. Joseph; Vice Chairman, Dr. John L. Myers, Kansas City, and Secretary, Dr. C. W. Tooker, St. Louis.

On motion the Seventy-Seventh Annual Session of the Missouri State Medical Association adjourned *sine die.*

REGISTRATION AT SEVENTY-SEVENTH ANNUAL SESSION

St. Joseph, May 7, 8, 9, 10, 1934

*Adams, G. F., Los Angeles, California
*Adams, Mr. H. H., Kansas City
Allaman, J. M., St. Joseph
Allee, W. L., Eldon
Allen, Duff, St. Louis
*Andruss, Edward A., Holden
Andruss, Edward, Holden
*Anthony, F. R., Maryville
Aschman, T. H., Kansas City
Asher, Arthur G., Kansas City
Atwood, William G., Carrollton
Baer, Alvin J., Kansas City
Bailey, Fred, St. Louis
Bansbach, J. J., St. Joseph
Barden, Frank W., Centralia
Barger, J. N., Albany
Barnhart, D. A., Huntsville
Bartelsmeyer, Mr. E. H., St. Louis
Bartlett, Williard, Jr., St. Louis
Bauman, L. C., St. Joseph
Baysinger, S. L., Rolla
Beal, Homer A., Kansas City
Beck, Leroi, St. Joseph
Beil, Wallace C., Kansas City
Bell, John M., St. Joseph
Berger, Harry C., Kansas City
Berney, Francis J., St. Joseph
Berrey, R. W., Mexico
Bickel, Vern T., Aurora
Bickford, Wallace M., Marshall
*Bierring, Walter L., Des Moines, Iowa
Bloomer, Gaylord T., St. Joseph
Bloomer, O. T., St. Joseph
Boteler, Geo. M., St. Joseph
Bourke, T. S., Kansas City
Brady, Chas. H., Chillicothe
Braecklein, W. A., Higginsville
Branson, C. S., St. Joseph
Brashear, H. C., Mexico
Brennan, J. T., Kansas City
Brennan, R. J., Chillicothe
Breuer, Robt. E., Newburg
Breuer, W. H., St. James
Bridgeman, R. B., Fulton
Bruner, Claude R., Columbia
Brunner, E. E., Carrollton
Buckingham, W. W., Kansas City
Bunch, J. R., St. Joseph
Burgher, A. E., St. Joseph
*Burks, Mr. H. O., Jersey City, N. J.
Burns, J. Edward, Kansas City
Busiek, U. J., Springfield
Byrne, J. I., St. Joseph

*Visitor

Callaway, Guy D., Springfield
Calvert, Lewis C., Weston
Campbell, A. J., Sedalia
Campbell, F. B., Kansas City
Capell, C. S., Kansas City
Carle, H. W., St. Joseph
Chalkley, A. J., Lexington
Chandler, J. F., Oregon
*Charles, H. L., Atchison, Kansas
Chilton, J. C., Hannibal
Clark, H. M., Platte City
Cole, Paul F., Springfield
Collier, A., Chillicothe
Conley, Dudley S., Columbia
Conover, C. C., Kansas City
Cooper, J. O., Osage
Cope, J. Q., Lexington
Cordier, A. H., Kansas City
Cory, Harriet H. S., St. Louis
Cotton, T. W., Van Buren
Coughlin, W. T., St. Louis
Craig, Owen W. D., St. Joseph
Craven, Y. D., Excelsior Springs
Crockett, J. A., Stanberry
*Crooks, Chas. H., Lampang, Siam
Crowson, E. L., Pickering
Curdy, Robert J., Kansas City
Curran, E. J., Kansas City
Davis, A. G., Kirkwood
Davis, Chas. G., Walker
Davis, Harry, Kansas City
Davis, J. C. B., Willow Springs
Davis, J. M., Craig
Davis, P. C., Moberly
Dawson, J. W., Eldorado Springs
Day, Hiram, Maryville
Dean, J. McH., St. Louis
Dean, Leslie E., Maryville
*Deaver, H. J., Sabetha, Kansas
Dennie, Chas. C., Kansas City
Denny, R. B., Creve Coeur
Dewey, C. O., St. Joseph
Diekroeger, M. L., Marceline
Diveley, Rex L., Kansas City
Dixon, C. H., Moberly
Dixon, J. R., Linneus
Donaldson, C. O., Kansas City
*Doolin, L. R., Gallatin
Dorsett, E. Lee, St. Louis
Dowell, Donald M., Chillicothe
Dowell, Geo. S., Braymer
Dowell, Horace S., Chillicothe
Drake, A. A., Rolla
Duncan, Ralph E., Kansas City

Dunkeson, Edward B., Lathrop
Durham, Silas L., Dearborn
Dyer, C. P., Webster Groves
Edens, L. M., Cabool
Elam, W. T., St. Joseph
Eliscu, Frederick, St. Joseph
Elliott, B. Landis, Kansas City
Emmert, Fred, St. Louis
Ernst, Edward C., St. Louis
Eubank, A. E., Kansas City
*Ewell, Geo. H., Madison, Wisconsin
Feist, Geo. V., Kansas City
Ferguson, R. E., Elmo
Ferris, Carl R., Kansas City
Fischel, Ellis, St. Louis
Fleming, T. S., Moberly
Flynt, Jos. F., Paris
Forgrave, H. S., St. Joseph
Forgrave, L. Robert, St. Joseph
Forgrave, Paul, St. Joseph
Forman, Geo. W., St. Joseph
Francka, W. F., Hannibal
Freund, S. J., St Joseph
Frick, J. P., Kansas City
Frischer, Julius, Kansas City
Fuson, L. H., St. Joseph
Fuson, William A., Trenton
Gallagher, W. J., St. Louis
Gashwiler, J. S., Novinger
Gay, L. P., St. Louis
Gebhart, O. C., Oregon
Geiger, Charles, St. Joseph
Geiger, Jacob, St. Joseph
Gilkey, Harry, Kansas City
Gilliland, A. O., Cameron
Gilliland, Oliver S., Kansas City
Gleaves, O. G., St. Joseph
Glennon, W. P., St. Louis
*Goetze, Mr. Harry, St. Joseph
Goldberg, I. E., Polo
*Golden, Mr. H. M., Kansas City
Goldman, Max, Kansas City
Good, Clarence A., St. Joseph
Good, J. W., Fordland
Goodrich, H. B., Hannibal
Goodson, W. H., Liberty
Goodwin, E. J., St. Louis
*Goodwin, Mr. Harold, St. Joseph
Gove, H. S., Linn
Grace, H. M., Chillicothe
Gradwohl, R. B. H., St. Louis
Grant, Claude S., St. Joseph
Greenberg, Charles, St. Joseph
Green, John, St. Louis
Greene, L. D., Richmond
Grim, G. E., Kirksville
Grogan, F. M., St. Joseph
Gum, P. D, West Plains

Hale, Joseph M., Dearborn
Haley, Roy R., Brookfield
Hall, O. B., Warrensburg
Hall, Thomas B., Kansas City
*Ham, W. E., Beattie, Kansas
Hanks, Ralf, Fulton
Hanna, M. A., Kansas City
*Hansel, French K., St. Louis
Hanser, T. H., St. Louis
Hardesty, J. W., Hannibal
Harms, F. L, Salisbury
Harrison, J. F., Mexico
Hartigan, F. X., St. Joseph
Haw, U. P., Benton
Hawkins, George W., Salisbury
Hayward, John D., St. Louis
Henderson, James P., Kansas City
Henske, Andrew C., St. Louis
*Hensler, Mr. Joe, Kansas City
Herington, Warner, Green City
Hershey, John, St. Louis
Hess, H. Lewis, Kansas City
*Higdon, E. F., Hampton, Virginia
Hill, James A., Jefferson City
Hogan, Frank E., Mound City
Holbrook, Ralph W., Kansas City
Holbrook, Walter, Kansas City
Holley, A. E., St. Joseph
Holliday, M. L., St. Joseph
Hopkins, T. A., St. Louis
Howden, Thomas L., St. Joseph
Hoxie, George H., Kansas City
Hughes, J. M., St. Joseph
Hull, W. S., Faucett
Humberd, Chas. D., Barnard
Hunt, C. J., Kansas City
Hunt, W. J., St. Joseph
Hyndman, Charles E., St. Louis
Jackson, Jabez N., Kansas City
Jackson, W. R., Maryville
James, L. S., Blackburn
James, R. M., Joplin
James, W. J., Excelsior Springs
Janes, V. B., Cameron
Jennings, P. W., Canton
Jensen, Julius, St. Louis
Johnson, E. T., Kansas City
Johnson, Edgar W., Kansas City
Johnson, Glenn D., Maysville
Johnson, William E., Warrensburg

Johnston, E. L., Concordia
Johnstone, P. N., Kansas City
Jolley, J. Frank, Mexico
Jones, Austin B., Kansas City
*Kaltenback, E., St. Joseph
Kearney, Elmer F., Oregon
Keith, W. E., Kansas City
*Kelley, R. R., Savannah
Kemp, Thomas J., St. Louis
Kenney, W. L., St. Joseph
Kerr, H. L., Crane
Ketcham, William M., Kansas City
Kirk, Charlie W., Hopkins
Klinefelter, M. L., St. Louis
Knight, John S., Kansas City
Knight, L. B., Maysville
Koch, Otto W., Clayton
Koogler, John F., Kansas City
Koppenbrink, W. E., Higginsville
Krebs, F. J. V., St. Louis
*Kulowski, Jacob, Iowa City, Iowa
Kyger, F. B., Kansas City
*Lancaster, Mr. K. D., Kansas City
Laning, J. H., Kansas City
Lapp, T. S., Fulton
Lau, G. A., St. Joseph
Lemoine, A. N., Kansas City
Lewald, James, St. Louis
*Lierle, Dean M., Iowa City Iowa
Lilly, Terry E., Kansas City
Liston, E. H., Nevada
Liston, Odus, Oak Grove
*Locke, W. G., Kansas City
Long, Frank B., Sedalia
Love, Joseph W., Springfield
Lowe, H. A., Springfield
Lusk, C. A., Butler
Luten, J. B., Caruthersville
Lux, Paul, Kansas City
Lyter, J. Curtis, St. Louis
Mantz, Herbert J., Kansas City
Marshall, A. H., Charleston
Martin, W. T., Albany
*Martz, Mr. Del, St. Louis
*Martz, Mr. Jack, St. Louis
Mastin, Edward V., St. Louis
Mays, F. G., Washington
Mays, J. W., St. Joseph
Miles, B. E., St. Joseph
Miller, Eugene A, St. Joseph
Miller, E. Lee, Kansas City
Minton, W. H., St. Joseph
Montgomery, J. G., Kansas City
Moore, Milton H., Dearborn
Moore, Neil S., St. Louis
Moore, W. Roger, St. Joseph
Morest, F. Stanley, Kansas City
Morfit, John C., St. Louis
Morton, Daniel, St. Joseph
Mudd, J. L., St. Louis

*Visitor

Muench A. H., St. Joseph
*Mull, Fred, Grant City
*Mullen, C. J., Kansas City, Kansas
Mundy, Homer F., St. Joseph
Munsch, A. P., St. Louis
Musgrave, J. E., Excelsior Springs
*Musser, J. H., New Orleans
Myers, B. L., Kansas City
Myers, J. L., Kansas City
Myers, W. A., Kansas City
McAlester, A. W., the Third, Kansas City
McCallum, F. M., Kansas City
McCaughan, John M., St. Louis
*McClanahan, J. L., Gilford
McComas, A. R., Sturgeon
McCormick, F. L., Moberly
*McGaugey, J. H., White Cloud, Kansas
McGlothlan, A. B., St. Joseph
McIntyre, W. Kress, St. Louis
McKinley, J. G., Weston
McMahon, Alphonse, St. Louis
McMichael, Austin, Rockport
McVay, James R., Kansas City
Neal, M. Pinson, Columbia
Neely, James E., Kansas City
Neilson, C. H., St. Louis
Nifong, F. G., Columbia
North, E. P., St. Louis
O'Connell, J. D., St. Louis
O'Donoghue, James, St. Joseph
*Olthoff, Mr. Kenneth, St. Louis
Overholser, Milton D., Columbia
Owens, J. F., St. Joseph
Owens, M. J., Kansas City
Owens, P. H., Kansas City
Padgett, E. C., Kansas City
*Parker, E. R., Kansas City, Kansas
Patterson, William R., Warrensburg
Payne, B. T., Lexington
Perry, J. M., Princeton
Peterson, F. J., Richmond Heights
Pickens, E. F., Kansas City
Pipkin, Walter D., Monroe City
Poos, Grover H., St. Louis
*Poston, Mr. R. C., St. Joseph
Proud, W. C., St. Joseph
Ravold, Henry J., St. Joseph
Redmond, Thomas, St. Joseph
Reid, Charles T., Joplin
Rinkel, H. J., Kansas City
Ritter. C. A., Kansas City
Robichaux, E. B., Excelsior Springs
Robinson, G. Wilse, Jr., Kansas City

Robinson, G. Wilse, Sr., Kansas City
Robinson, J. L., Kansas City
*Rogers, Marion W., Leon, Iowa
Rose, D. K., St. Louis
*Ross, P. J., Grant City
Rothwell, J. H., Liberty
Roundy, C. I., St. Joseph
*Rowe, William G., Blue Springs
Ryan, F. M., Maryville
Ryan, J. H., St. Joseph
Ryland, C. T., Lexington
Saferstein, T. Harry, St. Joseph
Sale, O. A., Neosho
Sampson, J. H., St. Joseph
Sante, L. R., St. Louis
Saunders, L. E., Stewartsville
Schisler, E. J., St. Louis
Schofield, L. J., Warrensburg
Schooley, R. C., Odessa
Schulz, A. P. Erich, St. Charles
*Schwitalla, Rev. Father, St. Louis
Senor, S. E., St. Joseph
Sexton, D. L., St. Louis
Shelton, E. C., Eldon
Shores, E. M., St. Joseph
Shutt, C. H., St. Louis
Simmons, Sterling P., Marshall
Simpson, Morris B., Kansas City
Singleton, J. Milton, Kansas City
Skinner, E. H., Kansas City
Skoog, A. L., Kansas City
Smith, A. J., St. Joseph
Smith, Clifton, St. Joseph
Smith, Rollin H., Rich Hill
Snider, Sam, Kansas City
Spalding, W. B., Plattsburg
Spector, H. I., St. Louis
Spencer, Floyd H., St. Joseph
Spinzig, Edgar W., St. Louis
Stacy, W. T., St. Joseph
Stamey, James T., St. Joseph
Steckman, P. M., Plattsburg
Stein, Harry J., St. Louis
Sterling, J. A., St. Louis
Stewart, Wm. J., Columbia
Stoelze, J. D., Clayton
Stokes, Julius B., Mount Vernon
Stowers, James E., Kansas City
Stryker, G. V., St. Louis
*Studer, Miss Frances, St. Joseph
Stumberg, B. Kurt, St. Charles
Stutsman, David B., St. Louis
Suddarth, Charles H., Excelsior Springs
Summers, J. S., Jefferson City

*Swab, Charles M., Omaha, Nebraska
Tadlock, B. W., St. Joseph
Tainter, F. J., St. Louis
Talbott, Hudson, St. Louis
Talty, M. H., St. Joseph
Tate, Prentiss S., Farmington
Tesson, James A., Kansas City
Thomas, C. E., St. Joseph
Thomas, Forrest, St. Joseph
Thomason, H. E., Kansas City
Thompson, F. Gregg, St. Joseph
Thompson, Fred G., St. Joseph
Timberman, J. H., Chillicothe
Titsworth, Guy, Sedalia
Tooker, C. W., St. Louis
Trimble, W. K., Kansas City
Underwood, M. L., St. Joseph
Underwood, Ross H., Kansas City
Unterberg, H., St. Louis
Vanorden, H. F., Kansas City
*Veazey, Mr. A. W., St. Louis
Virden, C. Edgar, Kansas City
Wallace, C. H., St. Joseph
Wallace, H. K., St. Joseph
Waller, Riley M., St. Joseph
*Waugh, Mr. A. L., Kansas City
Webb, W. D., St. Joseph
Welch, A. J., Kansas City
Welch, Albert S., Kansas City
Welch, W. A., Callao
Welker, Joseph E., Kansas City
*West, H. E., St. Louis
West, W. M., Monett
*Wherry, W. P., Omaha, Nebraska
Whitsell, O. E., St Joseph
Wilhelmi, Otto, St Louis
Williams, D. A., Kansas City
Willman, R., St. Joseph
Wilson, Fred K., Winston
Wilson, L. A., Cameron
Winningham, W. H., Trenton
Wise, H. J., Sparta
Wisser, J. J., St. Joseph
Withers, Orval R., Kansas City
Wood, L. E., Kansas City
Wood, Walter S., Edgerton
Woolsey, R. A., St. Louis
Wortley, Cabray, St. Joseph
Wright, Gordon D., St. Joseph
Wright, J. B., Trenton
Wysong, W. L., Liberty
Yazel, H. E., Kansas City
Zeinert, O. B., St. Louis
Zillman, A. W., Keytesville
Total, 436

BUCHANAN COUNTY MEDICAL SOCIETY

The regular meeting of the Buchanan County Medical Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital at 8 p. m. May 16.

Dr. Daniel Morton, chairman of the committee on state medicine, reported that any member of the Buchanan County Medical Society has the privilege of making application in writing to the Transient Bureau for appointment and his appointment will rest exclusively with the Transient Bureau to which he shall be responsible for all his acts as an employe thereof.

Dr. W. T. Elam, Councilor of the Second District, discussed the accomplishments of the recent State Association Meeting.

The delegates, Drs. Floyd H. Spencer and William H. Minton, also spoke on the meeting.

After some discussion a motion was made by Dr. A. H. Muench, seconded by Dr. Floyd H. Spencer and carried, that the Society go on record as favoring the table demonstrations as presented at the recent State Meeting and urging their continuance.

Meeting of June 6

The Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital at 8:30 p. m. June 6.

A communication was read from Mrs. C. H. Werner, president of the Woman's Auxiliary, thanking the Society for the donation of $100

which they used in entertaining the visiting women during the State Meeting.

A communication was read from the Assistant Secretary of the Missouri State Medical Association congratulating the Society for the manner in which they entertained the members of the State Association.

The scientific program consisted of an address by Dr. Riley Waller, St. Joseph, on "The Tragedy of Undiagnosed Syphilis." The author deserved much credit for the able manner in which he handled his subject. By the use of lantern slides he illustrated the points he wished to bring out in a highly entertaining and instructive manner. The paper was discussed by Drs. A. H. Muench, T. L. Howden, Charles Geiger, H. DeLameter, closed by Dr. Waller.

Emmett F. Cook, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society held its annual banquet at the Marquette Hotel, Cape Girardeau, on April 9 with forty members and guests present.

Dr. Jean V. Cooke, St. Louis, was the guest speaker and addressed the assembly on "Infectious and Contagious Diseases, Vaccines and Antitoxins in Their Management." This instructive lecture was attentively received.

A vote of thanks was given Dr. Cooke.

Meeting of May 14

The Society met in regular session May 14 at the Court House in Jackson, Dr. H. V. Ashley, Cape Girardeau, presiding.

Members present were Drs. B. W. Hays, D. G. Seibert and D. I. L. Seabaugh, Jackson; O. L. Seabaugh, H. L. Cunningham, J. H. Cochran, and C. A. W. Zimmermann, Cape Girardeau. Dr. P. T. Russell, Hot Springs, Arkansas, United States Army, was a guest.

A letter from the American Birth Control League was read. No action was taken.

A letter from Dr. John D. Hayward, St. Louis, relating to the abuse of charity especially in clinics was read. The secretary was instructed to reply.

Dr. H. L. Cunningham, Cape Girardeau, read a paper on "Eye Signs in Diseases of the Central Nervous System." This was an excellent paper and was enjoyed by all.

C. A. W. Zimmermann, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was called to order by the president, Dr. G. D. Callaway, Springfield, April 23, at Springfield. The following were present: Drs. W. R. Beatie, U. J. Busiek, G. D. Callaway, J. W. Coon, W. C. Cheek, L. Cox, P. F. Cole, E. L. Evans, T. E. Ferrell, Jr., E. M. Fessenden, A. W. Gifford, E. E. Glenn, O. C. Horst, G. W. Hogeboom, F. T. H'Doubler, H. L. Hoover, Jr., F. A. Harrison, T. O. Klingner, G. B. Lemmon, J. W. Love, J. F. Leslie, J. D. Musick, W. P. Patterson, J. A. Robertson, T. H. Romeiser, W. Smith, W. S. Sewell, D. H. Silsby, J. W. Williams, Jr., J. N. Wakeman, W. T. Walsh and D. L. Yancy, Springfield; and L. L. Hensen, Camdentown. Guests were Drs. Duff Allen and Roland Klemme, St. Louis; E. G. Beers, Seymour; W. A. Atkins, Rogersville; C. R. MacDonnell, Marshfield; R. E. Darby, Springfield; R. R. Farthing, Ozark; R. D. Cowan, Aurora; H. L. Kerr, Crane, and H. J. Wise, Sparta.

Dr. G. D. Callaway, Springfield, reported the gift of an oxygen tent by Mr. Benjamin J. Harrison to be used by the Society. Drs. G. B. Lemmon, U. J. Busiek and C. B. Elkins were appointed a committee to act as governors of the use of the tent. A motion was made, seconded and carried that the secretary be instructed to extend the thanks of the Society to Mr. Harrison.

Dr. P. F. Cole, Springfield, discussed the amendments to the Constitution and By-Laws of the State Association as suggested by the St. Louis Medical Society. Dr. Cole moved that a called meeting be held to discuss these amendments; seconded and carried. The president designated May 3 for the special meeting.

The application for membership of Dr. J. K. Chipp, Branson, was referred to the board of censors.

Dr. Duff Allen, St. Louis, presented a paper on "Total Thyroidectomy in Heart Disease" followed by a motion picture showing patients both before and after operation.

Dr. Roland Klemme, St. Louis, gave a talk illustrated with lantern slides on "The Accurate Differential Section of the Posterior Routes for Trigeminal Neuralgia."

These papers dealing with these two new and interesting phases of surgery were instructive and were enjoyed by all present.

J. W. Williams, Jr., M.D., Secretary.

CORRESPONDENCE

HYPERADRENALISM AND HYPERTENSION

Kansas City, Missouri, April 20, 1934.

To the Editor:

I presume you saw the article "Subtotal Bilateral Supranalectomy for Hypersuprarenalism (Essential Hypertension)" which appeared in the *Journal of the American Medical Association,* issue of April 7, 1934. This article represents some advanced thought on the subject and described a method of treatment for this very important condition.

You will be interested in referring back to my article published in The Journal of the Missouri State Medical Association, April, 1924, "Essential Hypertension: Primary Hyperadrenalism." In this article I tried to direct some thought to this subject and to point to the hypothesis of hyperadrenalism as being the cause of essential hypertension, and outlined a basis of endocrine therapy for this disease. I think this particular article which appeared in The Journal is one of the first to direct attention to this possible relationship of endocrine disease to essential hypertension and I feel that it would be interesting to trace this further development of thought which now appears after ten years.

A. Sophian.

THE JOURNAL

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TETANUS INFECTION TREATED WITH ANTITOXIN AND AVERTIN

F. A. HARRISON, M.D.
SPRINGFIELD, MO.

AND

H. L. HIGGINS, M.D.
BOSTON, MASS.

Specific antitoxin used alone in tetanus infection where the nervous system is seriously involved has proved relatively inefficient. Many drugs have been used and reported on to control the spasms and preserve the patient's resources. Avertin was used in this role during the last year with four cases of tetanus, treated in the children's wards of the Massachusetts General Hospital. This drug, first produced by Willstatetter and Duisberg, is chemically tribromethenol. Over 300,000 cases have been reported and published by men outstanding in the medical profession. Raginski, Bourne and Bruger[1] report no deleterious action on the heart and circulatory system in dosages of avertin much larger than is necessary for anesthesia. Bourne and Raginsky[2] state that the effect on the liver is by no means as damaging as chloroform. McKim and Bourne[3] report one case where avertin was administered to one individual on twenty-two occasions within a period of ten days, functional tests showed no appreciable effect on the liver. White[4] reports 1000 cases of avertin used in major surgery without accidents. Pierce,[5] Reed[6] and Goldman[7] make favorable reports on many cases in obstetrics and gynecology. Dandy[8] has done 250 major cranial operations with avertin anesthesia and reports very favorably on it. Huntington[9] kept one patient almost constantly under the influence of this drug for 13 days in the treatment of tetanus with a recovery and without any discoverable harmful effects from its use. No ill effects were noted in our own cases from its use.

Read at the 76th Annual Meeting of the Missouri State Medical Association, Kansas City, May 1-4, 1933.

REPORT OF CASES

Case 1. This patient was a two and three quarter year old white boy who was admitted to the hospital on July 1, 1932, because of convulsions. On June 25 the child had complained of a sore nose and the mother had removed a piece of wall plaster from the left nostril. Two days later he was brought to the outpatient department because he was not breathing well and a wad of paper was removed from the right nostril. On the 28th of June he had some choking and complained of being unable to swallow food. At the hospital he swallowed water perfectly well and no abnormalities were found. In the next two days he became worse, and on the morning of admission had two convulsions lasting about fifteen minutes each, marked with cyanosis, frothing at the mouth and rigidity. On physical examination it was noted that he had a definite trismus but otherwise was perfectly flaccid. His neck was not stiff.

During that day on several occasions when the child was disturbed he would go into a generalized convulsion marked especially by cyanosis and holding of the breath. Two of these attacks were induced when fluids were given, and one when a lumbar puncture was attempted. Shortly after admission 4500 units of tetanus antitoxin were given intramuscularly. Two hours later 6000 units were given similarly and the next day 5000 units were twice given. On the second night in the hospital, about thirty-six hours after admission he had two more convulsive attacks and during the second one he died. Avertin was given on two occasions to quiet the child.

Comment: The child had what is called cephalic tetanus. There was no involvement of the facial nerves as is frequent with that type. The incubation period was strikingly short and the etiology would seem to be from organisms on the hair of the wall plaster entering an abrasion of the nasal mucous membrane. There was no opisthotonus and the abdomen was very soft except when the child was in convulsion. The death was quite definitely due to spasm of the muscles of respiration which prevented breathing. Postmortem examination confirmed the diagnosis. This type of tetanus is usually

quite severe and textbooks report 90 per cent mortality.

Case 2. This was a nine year old boy who thirteen days before admission to the hospital on Aug. 29, 1931, had stepped on a nail when in a fruit store. This was a puncture wound; it was treated with iodine and bandaged. No further trouble was noticed for eleven days, after which time he began to complain of pain in his jaws. The following day be complained of cramps in the muscles of his legs and his jaw became very much more tender and tense. These symptoms grew worse and he was admitted to the hospital at 2 a. m.

On the ball of the foot was the site of the recent puncture wound which was not tender. The child showed inability to open his jaws more than a fraction of an inch. His neck was stiff and he could not sit upright. There was opisthotonus and the abdominal muscles were very tense. The feet were flexed. He was given 20,000 units of tetanus antitoxin intravenously and the same amount intraspinally on admission; 2000 units were injected into the region of the wound; glucose was given intravenously and chloral hydrate by rectum.

As the child continued to be very irritable and was obviously in considerable distress, that afternoon avertin (80 mg. per kg. bodyweight) was given. This quieted the child considerably so that he slept quietly for some time. Later that afternoon 40,000 units of tetanus antitoxin were given intravenously and intramuscularly. That evening avertin was repeated and during the next twenty-four hours was administered three more times. Two days later as the child seemed to be better sedatives were dispensed with and two weeks later the child was discharged apparently well. A total of 150,000 units of antitoxin were given to this child and avertin was administered on six occasions.

Comment: This was a typical case of tetanus from a known puncture wound. The patient showed the characteristic stiffness of the muscles, especially of the abdomen, jaw and back. The child obviously suffered considerably and was very uncomfortable. We feel that much benefit resulted in this case from the use of avertin, which maintained him in a state of mild anesthesia for a period of about five hours for each dose.

Case 3. This child, a ten year old boy, entered the hospital Oct. 8, 1931, with complaint of inability to open his mouth, a painful back and general muscular cramps. He showed the typical risus sardonicus and a moderate opisthotonus. The abdomen was board-like and the reflexes were very active.

The etiology in this case could not be well established. He lived on a farm in the country. He had been injured by a pitchfork eight months previously but the wound had healed quickly. He had been barefoot practically all summer and up to two weeks before entering the hospital. At that time he had started to wear a pair of new shoes and had developed a blister on the right heel. This had healed slowly but was practically forgotten at the time of admission. In this case infantile paralysis had been suspected by the physician called to see the child but a lumbar puncture had shown nothing abnormal.

This boy was treated with 40,000 units of tetanus antitoxin given intraspinally and intravenously shortly after admission. During the first twenty-four hours in the hospital the child had several generalized convulsions and the temperature rose to 104° F. He was restless and in pain. He was given avertin every eight hours for a period of one day. This induced a mild anesthesia which rendered the child much more comfortable. On each of two days following admission 20,000 units of antitoxin were given intravenously and 5000 to 20,000 units on each of the succeeding four days. In all the child received 126,000 units during eight days. He was discharged on October 31.

Comment: This child showed a fairly severe case of tetanus with generalized spasticity. The cause of the infection was uncertain, but he lived on a farm and a story of many minor wounds could be elicited any one of which might have been the cause of the trouble. The most recent of the wounds had been the blister from the new shoes.

Case 4. This was a six year old Italian boy who entered the hospital Oct. 8, 1931. For eight days he had had difficulty in swallowing and had been unable to take solid food. He had no sore throat. For five nights he had slept very restlessly, waking with a start every fifteen minutes. The boy was suspected of having poliomyelitis and a lumbar puncture was done with negative findings. He was treated with tetanus antitoxin in a local hospital before being brought to the Massachusetts General Hospital.

There were several possible causes for the infection. Sometime previously he had cut his foot on the wire fence of a chicken coop while barefoot. Thirty-three days previous to admission, that is on September 3, he had been vaccinated for smallpox on the left arm. The scab was still present but showed no local tenderness. No pus was obtained on removing the scab. Culture of the scab showed no tetanus bacilli.

This child showed a trismus and could open his mouth but one centimeter. There was dorsopedal spasm and the fists were tightly clinched. The abdomen was not board-like but became so at the slightest apprehension on the boy's part. Avertin was given on but one occasion. In the course of his stay in the hospital he received 75,000 units of antitoxin of which 55,000 units were given within the first twelve hours.

Comment: Here again we were dealing with a farm boy who had gotten several cuts on his feet, had gone barefooted and could quite easily have picked up the tetanus infection. The smallpox vaccination raises a question. The vaccination wound certainly was not proved to be the cause or site of the tetanus infection. It would seem that if it were the site the bacteria entered the wound not from the vaccination material used but from an infection of the active lesion. Dr.

Armstrong of the United States Public Health Service reports that he has never yet been able to prove that tetanus has come from the vaccinating material. It usually occurs in cases where shields have been used. But in this case there was no shield.

DISCUSSION

These cases were given respectively 20,000; 152,000; 126,000, and 75,000 units of tetanus antitoxin. The average price to a doctor for such antitoxin is approximately one dollar per thousand units. It is thus obvious that the cost of the antitoxin has mounted up very high in these patients, especially in the last three cases. With poor patients, or where the expense is borne by the hospital or philanthropic institution, it may prove quite a burden on the resources.

The question may well be raised whether such very large doses of tetanus antitoxin are of appreciably more benefit than smaller doses. Bacteriologists tell us that tetanus antitoxin will neutralize only such toxin as is produced after the giving of the antitoxin, as fixed toxin is essentially unaffected by antitoxin. A similar problem is met with in diphtheria antitoxin; some physicians have a tendency to use very large doses, although others have gotten quite as satisfactory results with doses not exceeding ten or fifteen thousand units per patient. Fear of the disease and therapeutic custom are probably the reasons for large doses of antitoxin. Is the giving of very large doses of tetanus antitoxin therapeutically of more value, or should we adhere to the theoretical and scientific findings in treating the disease and not resort to such large and expensive doses? Thus, would not 10,000 units the first day and 5000 units each successive day, so long as the symptoms continue, be sufficient antitoxin? The prophylactic dose of antitoxin is not over 1500 units. It is not illogical to assume therefore that little if any in excess of this amount would be sufficient to neutralize toxin formed from a definite lesion.

There was considerable discussion among members of the visiting staff who cared for these patients as to whether antitoxin should be given intraspinally in tetanus infection. The giving of any serum intraspinally is likely to set up irritation of the meninges and produce edema. This may result in making the patient much more uncomfortable. In tetanus infection the part of the central nervous system which one wishes to reach with the antitoxin is the spinal cord and brain, and not the meninges. But contact of antitoxin with nerves or nervous tissue would be more likely if the antitoxin entered through the blood stream rather than intraspinally as it is the blood which nourishes the nerve tissue and not the spinal fluid. One must remember that the fundamental value of the antitoxin is to neutralize toxin which is subsequently formed and that it does not affect the toxin which has already become fixed. It would seem then that in giving antitoxin intraspinally for tetanus infection there is no added therapeutic value; and it may result in greater discomfort to the patient and perhaps some injury to the nervous tissue by increasing edema of the brain and spinal cord.

In the symptomatic treatment of tetanus a sedative is very frequently and definitely indicated. The value of such a sedative is two-fold: first, to diminish the reaction to stimuli, which, although very small, may start a tonic or clonic convulsion; and second, to relieve the discomfort of the child. A tetanic convulsion is distinctly painful and the increased tone of the muscles results in definite discomfort. Also, the giving of fluids to a child with tetanus is frequently very necessary. Often he cannot swallow and fluids must be given by rectum or intravenously. In order to do this with the least disturbance to the child it is quite important that he be pretty well narcotized. We have found avertin quite successful in accomplishing this purpose. The dose used by us was 80 mg. per kg. of body weight, although in future cases we are inclined to favor the 100 mg. per kilogram dosage. The technic of administration is simple but must be followed exactly as directed. Avertin fluid (the only available form) is a solution of avertin in amylene hydrate. Each cc. of fluid contains one gram of avertin. It is supplied in 25 and 100 cc. bottles with a vial of Congo red aqueous test solution. In its preparation the following directions should be observed:

1. Consult the dosage tables to determine the amount of avertin fluid and distilled water required for a 2.5 per cent solution.
2. Heat the measured distilled water in a tightly closed flask to 104° F. (40° C.) The ordinary Florence or Erlenmeyer flask 500 or 1000 cc. capacity is best.
3. Measure the avertin fluid in a 10 cc. syringe or pipet.
4. Add the avertin fluid to the water. Stopper the flask, invert and shake vigorously until all the globules of avertin fluid have disappeared.
5. Do not allow the solution to cool.
6. Before injecting, test 2 to 5 cc. of the prepared solution in a test tube by adding

1 or 2 drops of Congo red solution. A pure orange red color should develop. If the color is blue or violet discard as it has become decomposed.

We never encountered the slightest difficulty at any time in our preparations. The injection is given by means of a funnel or syringe and a male catheter, using no force. Its effects are manifest in a very few minutes.

We find that avertin maintains a definite sedative action, often to the point of complete anesthesia for a period of about five hours. There is a milder action for three or four hours longer. We have encountered no bad results from its use in tetanus infection. It has been our custom to follow the blood pressure at frequent intervals while the child has been under the influence of avertin. We feel that the main value of avertin over many of the other sedatives in use is its more prolonged and more efficient action.

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DERMATITIS DUE TO ANILINE DYE

Harry Leonard Baer, Pittsburgh (Journal A. M. A., July 7, 1934), reports a case in which the coloring matter (an aniline derivative) of a food product in common use acted as a sensitizing agent and produced toxic manifestations, illustrating the production of sensitivity and toxic gastro-intestinal effects by the coal tar derivative. The question is raised as to whether the reaction produced by the aniline dye in this patient is truly toxic or whether it is allergic. If the patient is reacting abnormally to small doses of a common allergen, then the manifestation is allergic. But the possibility that the gastro-intestinal symptoms are truly toxic cannot be definitely excluded. A truly toxic reaction as produced by such substances as mercuric chloride and mustard would cause an immediate gastro-intestinal upset with vomiting, but these irritants are more concentrated than the one in the case under discussion. The response of the patient to the aniline dye was a general one, not based on an idiosyncrasy; hence it was a toxic rather than an allergic reaction. The procedures that are used to demonstrate allergy (passive transfer, scratch, patch, and intradermal tests) were entirely uncorroborative.

A CLINICAL APPRAISAL OF WATER METABOLISM

B. Y. GLASSBERG, M.D.
ST. LOUIS

The modern scientificially minded physician is thoroughly aware of the human requirement for protein, fat, carbohydrate, vitamins, mineral salts and roughage. Because he is possibly less well acquainted with water requirement and metabolism it is perhaps worth while to recapitulate briefly the subject from the viewpoint of clinical practicability.

Sanctorius of Padua in the early part of the seventeenth century inaugurated the study of water metabolism. By placing himself in a "steel-yard" for several hours after ingestion of various foodstuffs he determined his loss of body weight; that is, the insensible perspiration which is continuous in all human beings. He records that in the first four hours after eating "a great many perspire a pound or near; and after that to the ninth, two pounds."

The water of metabolism is derived from several sources: That obviously present in ingested fluid; that present in ingested food (cucumbers contain 95 per cent water, meat about 50 per cent); that derived from oxidation of foodstuffs (roughly 12 grams per 100 calories of mixed diet), the so-called water of oxidation; preformed water or water stored in the body, chiefly in protein and carbohydrate depots. The hibernating animal that ingests no fluid during a period of several months constantly gives off water derived from oxidation of fat (107 grams water per 100 grams fat) through lungs and skin.

Water serves several purposes in the animal economy; namely, as the largest part of each cell (the body is about 75 per cent water); as a primary constituent of blood and body juices (the stomach secretes from 1000 to 2400 cc. daily); as a diluent in response to inflammatory reactions; as a vehicle for excretion of body waste, and as an important agent of heat loss. In performance of the first two functions it may be used over and over again; of the last two it is permanently lost to the body. Water intake in temperate climates varies between one and a half and 3 quarts daily. Much more is needed in the tropics; for example, it has been estimated that an Englishman living in India requires a daily minimum of 13 quarts for comfort. The average adult loses a little over a pint of water daily through the in-

sensible perspiration constantly taking place through the skin; about half this amount in air expired from the lungs; about half this amount again in the feces (except in diarrhea); and from a pint to a quart and a half in the urine. Even the person congenitally devoid of sweat glands who must keep his clothes soaked in water in order to work, loses the usual amount of fluid in insensible skin perspiration. Vigorous exertion causes sensible perspiration the amount depending upon the violence of the exercise, the external temperature, humidity, wind velocity and type of clothing worn.

Water metabolism may be considered from the standpoints of hyperfunction, hypofunction and dysfunction. Hyperfunction is represented by the well-known but rare disease, diabetes insipidus, in which there is an abnormal craving for and urinary excretion of water. The largest recorded water intake in one individual was reported by Trousseau as 43 quarts daily. The disease is specifically treated by hypodermic injection of pituitrin or pitressin as often as indicated; the drug probably causes diminution in the avidity of individual cells for water.

Hypometabolism of water is the result of privation; it is manifested by the usual symptoms of thirst, much exaggerated. It may progress to the stage of active delirium and death. Man cannot live for more than 72 hours, if so long, without water, although it is reported that an Italian political prisoner lived for 18 days without either food or water.

DYSFUNCTION OF WATER

Dysfunction of water metabolism is not uncommon. Workers exposed to high external temperatures, for example in steel mill or ship's hold (as well as athletes undergoing strenuous exertion under a torrid sun), sometimes suffer from weakness, nausea, muscle cramps, prostration, etc. If salt in physiologic amount (roughly 2 teaspoonfuls to the quart) be added to their drinking water the symptoms do not develop. Properly speaking the condition is not a water dysfunction but a result of uncompensated loss of salt in the excessive sweat. In treated cases of diabetes insipidus if the water intake continues high, asthenia, restlessness, vomiting, headache, convulsions and even death may result from the tremendous accumulation of water within the tissues. In patients with chronic nephritis the ingestion of as much as 10 quarts of water daily, because of the impaired excretion of water, may cause similar symptoms accompanied by rise in blood pressure, dizziness and dyspnea.

Clinically much milder disturbances of water metabolism occur; for example, abnormal retention of water within the tissues. This was common in the Central European countries during the Great War sequent to the scarcity of biologic (meat) protein in the diet. In patients in asylums and in debilitated patients (for example, in severe pernicious anemia) an edema first manifested in the dorsum of the foot is sometimes found; it may be materially diminished by the ingestion of meat protein. Some obese persons fail to respond to adequate dietetic and endocrine management because the fat stores of the body, although used up as a source of necessary energy, are replaced by water. Roundtree recently reported two patients in whom an obesity of some 30 pounds was due entirely to water retention. Such a state may be easily determined by pinching up the skin over various parts of the body between thumb and forefinger; depending upon the degree of pitting about the hair follicles much or little edema is assumed to be present. The disappearance time of intracutaneously injected sodium chloride has been recommended as an aid in the determination of tissue water retention. Such edema is relieved by administration of ammonium chloride and mercury diuretics. The edema of cardiac and kidney insufficiency need not be considered in this paper.

MECHANICAL EFFECTS OF WATER

Adequate ingestion of water probably helps maintain a continuously downward gradient in the intestinal tract, thus aiding fecal evacuation. The mildly costive patient may be relieved by drinking two glasses of water on arising, thus setting up a peristaltic wave terminating in defecation. Many persons will not drink water with meals in the fear that so doing interferes with the absorption of food. It has been conclusively demonstrated that absorption is actually enhanced by taking water with food because dilution of the ultimate food constituents in the small intestine results in a solution of lower osmotic pressure than that in blood. However, the increase in absorption is not so great as to warrant withholding of fluids during a reduction cure.

Ingestion of a large amount of water by a normal man results in washing out of the body into the urine some 3 grams of nitrogen. (The normal daily urinary nitrogen excretion is between 10 and 15 grams.) If water washes out this excess of nitrogen

which reaccumulates when the excessive ingestion is stopped, it is entirely reasonable to assume that in infectious and toxic states in which there is accumulation of poisonous wastes in the body an increased fluid intake will bring about diminution in the amount of such retained material. While such a thesis is not easily demonstrated in the laboratory, clinical observation amply confirms it. During the course of any fever it seems wise to maintain the minimum fluid intake, in the absence of contraindications, above 3 quarts daily; it must be remembered that the large ingestion of fluid in fever aids in the dissipation of the excess heat formed by the body in its effort to combat the infection. Extra water may be given by hypodermoclysis.

Certain cures have as their basis the use of very small amounts of fluid; for example, the Karrel diet for decompensated heart disease, and the dehydration treatment of epilepsy. It has been estimated that the minimum water intake compatible with health is a little over a pint daily; that compatible with comfort over a quart, and that compatible with optimal well-being over 2 quarts. Because needless deprivation of water involves extreme suffering on the part of the patient it behooves the physician to consider whether the same result might not be obtained by less cruel methods. The heroic Karrel cure hardly seems necessary today in view of well standardized digitalis compounds and powerful diuretics generally available. Even in epilepsy dehydration of cerebral tissues can probably be accomplished without resort to radical restriction in water intake.

SUMMARY

1. The minimal water intake compatible with optimal nutrition is over 2 quarts per day in temperate climates; in hot weather or during excessive physical exertion more should be ingested to aid the body in the elimination of heat. If considerably greater amounts of water are required under these circumstances its value may be enhanced by the addition of table salt in physiologic proportion (2 teaspoonfuls to the quart).

2. The minimal water intake in infectious or toxic states should be 3 quarts per day in the absence of contraindications.

3. There is no physiologic reason for limiting the water ingested with meals or that allowed during the course of a reducing cure. If an obese patient under adequate management faithfully executed fails to lose weight the cause should be sought in water retained in the tissues.

4. Dehydration treatments for disease should not be thoughtlessly inaugurated, nor should they be continued longer than absolutely necessary.

810 Metropolitan Building.

ROENTGEN THERAPY OF BONE METASTASES FOLLOWING CARCINOMA OF THE BREAST

JOSEPH C. PEDEN, M.D.

ST. LOUIS

Every physician is well acquainted with the frequency of metastases to the bones following carcinoma of the breast. This paper deals mainly with observations of a clinical nature and the results obtained in these cases by treatment with deep roentgen ray although there are many interesting and mysterious points in the pathology of these cases.

The bones most frequently attacked are the femur, pelvis, spine, ribs and bones of the shoulder and skull. Bone metastases are rarely seen below the knees or elbows. It is assumed that the cancer cells are carried by the blood and lymph and lodge somewhere in the body and another tumor, which is called a metastasis, results. But why a cell should pass through the entire body and lodge, for instance, in the eleventh thoracic vertebra without any evidence either clinically or by roentgen ray of metastasis anywhere else in the body is difficult to understand. There must be a reason other than the mechanical lodging of the cell in this particular spot. It is well known that tumors of certain organs tend to metastasize in certain definite places in the body. It is also well known that cancer will lie dormant after surgical removal of the primary tumor for a number of years and then a metastasis in some other organ will manifest itself. The question of whether or not this second tumor is another primary tumor naturally arises, but I recently saw a patient who had had her left breast removed by paste and fifteen years later developed symptoms of pulmonary trouble which proved to be carcinoma of the left lung immediately beneath the site of the left breast. Externally there was no evidence of recurrence or glandular involvement, but I think the inference that this lung tumor was secondary to the breast was quite logical. Yet this patient showed no evidence of bone involvement at any place. Cases

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which show metastases to soft tissues do not show metastases so often to bones and cases with metastases to bones do not frequently give symptoms of trouble with the different organs until late. This is probably accounted for by the metastases to the vital organs carrying the patients off too quickly for bone metastases to develop; for it is quite true that bone metastases grow slowly and one is often amazed to see a patient with bones literally honeycombed with cancer and still appear to be in fairly good general condition. But why did this case of lung metastasis go on for fifteen years and not show bone metastases as so many cases do? All the theories that have been advanced regarding the cancer question seem only to deepen the mystery and do not in any single instance offer a logical solution of the problem.

The advance that has been made in the cancer problem has been practically entirely along the lines of treatment and very little, if any, in the etiology. With the development of the so-called ultra deep roentgen ray machines there has occurred a definite step forward in the treatment of malignancy. I do not wish to go into the advantages and disadvantages of the treatment of malignancy in general with roentgen ray at the present time, but I do wish to state that there exists great confusion at present in the treatment of malignancy by the different methods employed; and generally there is no concerted effort or attempt by the surgeons and radiotherapists in general practice to treat each individual case with the agent that by this time experience ought to show is the best, at least in a general way, for that particular case. The radiologist's greatest number of cases are the hopeless ones, the cases that have received surgery which has failed or the cases that are palpably beyond surgery owing to the size and extent of the tumor. This last point is important because I do not believe that the size or duration of the tumor should always determine the operability of the case. The general condition of the patient and the nature and location of the tumor are also determining factors; all patients who have tumors do not always die as a result of the tumor though they die with the tumor still present. Surgery has its place in the treatment of malignancy and probably at the present time is the most efficacious agent of all, but radium and roentgen ray certainly have their place in many cases if applied at the proper time. It seems that in our lack of knowledge of the true facts relating to cancer the proper course to pursue would be for the surgeon and radiotherapist together to go back over their cases and try to find out what cases do best under the different forms of treatment and apply that form or a combination of treatments to the particular case that comes in the future and not operate just because one is a surgeon or radiate just because one owns some radium or a roentgen ray machine.

Heretofore when it was found that a patient had bone metastases following a carcinoma of the breast nothing was done with any hope of relieving her; but she was usually kept under opiates to relieve the pain and her death expected shortly. However, at the present time many of these cases are getting definite relief from roentgen ray treatment of these metastases; it is possible to take away the opiates and some of these people who were bedridden at the beginning of treatment have been enabled to get up and about and attend to their usual duties. Of course I am not claiming that these patients are cured or that the bone metastases will not reappear; but I am insisting that their lives are prolonged, they are relieved of their suffering and they are made useful again for a time at least after they have been considered utterly hopeless and useless. The diagnosis, of course, is suggested by pains and swelling in and about the bones and is usually clinched by a roentgen ray examination which shows the peculiar moth eaten appearance. If a bone metastasis is found in one bone, the other bones should be rayed for evidence of involvement. As a matter of fact, I think that every woman who has had a carcinoma of the breast for several months should have all of her bones above the elbows and knees examined by the roentgen ray as the earlier these cases are treated the better. It has been suggested that this is not practical, but it takes only a few minutes to do and it seems to me that the expense and time involved certainly are justified if the patient can be saved considerable suffering and disability. As soon as the diagnosis is established the case should be given roentgen therapy for it is as equally true in radiation therapy as in surgery that the sooner the treatment is begun the better. Every bone showing evidence of metastasis should be thoroughly irradiated and this dose should be repeated within a month or six weeks if considered necessary. The treatment is applied directly over the point involved as it has not been shown that there is a distant effect in some other part than in that which received the roentgen ray treatment. I have, however, seen what I thought to be an ar-

rest in the development of a lesion in a bone distant to the place treated; for instance, in the skull when the patient refused to have her head treated because she was told it would remove her hair. But this I believe was due to an improvement in her general condition for it is thought that the general resistance which a patient has plays some part in holding certain tumors in check for a while at least. A few weeks after treatment roentgenographs show an arrest in the progress of the metastases and then a definite regeneration of bone which will in some cases entirely reform. This certainly shows a definite specificity of action of roentgen therapy on these cases and gives hope that it may lead to something very valuable in the treatment of malignancy in general. As soon as the bone metastases begin to improve the patient begins to improve generally—they feel much better, become stronger and gain in weight. I wish to offer the following brief case reports.

REPORT OF CASES

Case 1. Married, aged 37, referred September, 1922. One year previously right breast had been removed for carcinoma which had existed for two years to her knowledge. Regional glands were involved. Just before operation I made a roentgen ray examination and found metastases in both ischia. Her breast was removed but she was not given any roentgen ray treatments for some reason unknown to me. One year later she was referred to me for roentgen ray treatment. At this time she was in bed, could not get about, had indurated glands of both sides of the neck and in both axillae, had a kyphosis of the lumbar spine, pains in back and shoulders and paresthesia of right side of abdomen and right leg. Roentgen ray examination showed a most extreme metastatic involvement of the ribs, spine, pelvis, shoulders, right humerus and a general haziness throughout the lung. She was given ten hours of roentgen therapy with 200,000 volts which covered her from the base of the skull to almost the knees. She was sent home and I saw her at the end of a month and she was still in bed. She lived in a second floor flat and when I saw her again at the end of three months following the treatments she came downstairs to admit me. At that time she was doing her own housework. Roentgen ray examinations a few months later revealed complete regeneration of the humerus and rib and marked improvement in the other bones and the lung.

Case 2. Married, aged 43. Right breast had been removed in February, 1921, for carcinoma. In February, 1922, glands in the left supraclavicular region (the opposite side) became hard and swollen. In September, 1922, she developed pains in the left hip and thigh. Her doctor told her it was rheumatism and to forget about it and no roentgen ray examination was made. I would like to pause to say that every woman who has had a carcinoma of the breast and later develops rheumatism should be suspected of having bone metastases. When this patient was referred to me in March, 1923, she walked with a cane, looked badly, was very discouraged and did not want to take the treatment. She was referred by a surgeon other than the one who had operated on her. Examination showed glands of the neck and right axilla hard and swollen and roentgen ray examination showed metastases in left femur, both iliac bones, ischium and skull. Ten hours of roentgen ray therapy was given. The skull was not treated as she refused because the hair would be removed. Improvement was quite marked and rapid. She discarded her cane, her appetite was good, had no pain, gained weight and glands of the neck and axilla disappeared. Roentgenographs showed new bone formation in the pelvis and the femur. There was no change in lesions of the skull.

Case 3. Married, aged 46. Left breast was removed in May, 1923, for carcinoma with duration of over a year. Three months prior to the operation pain occurred in lower back. Referred to me July, 1923. At that time pain was quite severe in the back and she was unable to be up at all. She was not paralyzed but movement caused extreme pain; upon moving the pain would become greatly accentuated and would cause spasm of the legs and abdominal muscles. Roentgen ray examination showed a single metastasis in the eleventh thoracic vertebra with marked destruction and deformity of this bone and nowhere else. It was necessary to put her on a Bradford frame to move her about and to take her to the roentgen ray room. The first treatment was given July 21 and on August 6 she was able to move about in bed without pain and could turn over on the abdomen. She was sent home August 10, 1923, and brought back October 25, 1923, for more treatment and this time she was able to walk back and forth from her room to the roentgen ray room. Later she was able to care for her home. Roentgenographs showed a marked regeneration in the vertebra though it was still somewhat deformed.

Case 4. Married, aged 51. Right breast was removed in February, 1929. Referred to me in February, 1930, with complaint of pain beginning in chest six months after the operation and extending to back and hips. Roentgen ray examination showed extensive metastases to all of the ribs, the lumbar vertebrae, pelvic bones and the shoulders, with spontaneous fractures of some of the ribs. She was given roentgen ray treatments to all the bones of the thorax, shoulders, pelvis and back and returned in four months much improved. The pain had disappeared but her back felt stiff and roentgen ray examination showed an improvement in the appearance of the bones. She was given more roentgen ray treatment. She returned again in December, 1930, greatly improved, with no pain and marked gain in weight. She was given a few more treatments as a precautionary measure. She was not seen again until March, 1932, which was two years after her first roentgen ray treatment, and her condition was very good; roentgenographs showed a complete healing of the bone metastases. She died July, 1933, at her home which was not in St. Louis, presumably as the result of carcinoma.

At the present time all these patients are dead the duration of life following treatment being one to three and a half years. Possibly they would have lived as long without treatment, but certainly they were relieved of suffering and made more comfortable than they would have been without roentgen ray therapy.

Missouri Building.

PYRIDIUM IN THE TREATMENT OF GONORRHEAL VAGINITIS IN CHILDREN

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During the last decade numerous investigators have discussed the problem of vaginitis or cervico-vulvovaginitis in children. The modes of therapy and the medicinal agents have varied so greatly that, whereas each treatment is apparently satisfactory to the individual author, no one line of treatment has commanded universal acceptance. The regimé discussed in this paper is the result of a three year study using the same remedial agents. During this three year period twenty-eight children, approximately 40 per cent of the children registered in the vaginitis clinic of the Washington University Clinics, suffered from specific gonorrheal infections. We report the results obtained in twenty-one of these children between the ages of two and ten years who carried out the treatment satisfactorily and who have remained cured at least six months after cessation of treatment. The seven other children with a positive diagnosis did not follow the prescribed regimé and are not included.

The sources of infection in this group were the same as observed elsewhere, viz.: contact with a member of the family already infected by sleeping with that person, use of common towels, toilet, linens, baths, etc., accounting for most of the cases. This clinic being entirely an outpatient dispensary the problem of institutional epidemics is not a factor. Only one of the patients developed the infection in an institution. The relatively large number of cases which could not be traced to a definite source emphasizes the innocent mode of infection.

Vaginal discharge was the most common and constant symptom. This discharge varied in individual cases from a moderate yellowish secretion to a heavy greenish-yellow flow. In the latter cases the discharge was occasionally blood-tinged due to small erosions and ulcerations of the mucous membrane. This purulent secretion frequently caused irritation and excoriation of the labia and inner aspects of the thighs. The vulva, hymen and vagina were usually reddened and often edematous. In this group the infection uniformly remained localized to the lower genital tract. Speculum examination was not a routine procedure but in a few cases so examined the cervix presented a reddened appearance, especially in the region of the external os. In three cases swelling of the inguinal glands was noted. This subsided under conservative treatment as the vaginitis cleared up. Infection of Bartholin's glands, conjunctivitis, arthritis, peritonitis and other complications were not noted.

A positive diagnosis is made on demonstration of typical biscuit-shaped intracellular gram-negative diplococci on direct smear, and culture of the organisms on a special hormone agar medium.

GRADWOHL MEDIUM FOR CULTURE OF GONOCOCCI

This medium has proved so satisfactory that the detailed preparation is described.

Infuse 500 grams of lean chopped beef in 500 cc. distilled water in ice box over night. The following morning heat to 60° C.

Dissolve 20 grams of agar-agar in 500 cc. distilled water by boiling.

Add the melted agar to the treated beef infusion and bring to a vigorous boil. Press through a wire gauze strainer. The filtrate will be very cloudy.

Add 20 grams Witte's peptone and 5 grams sodium chloride, C. P. Heat to dissolve.

Adjust the reaction to from pH 8.0 to 8.2.

Boil vigorously for 10 minutes to precipitate the phosphates. Cool to 60° C. Dilute to volume with distilled water.

Stir in a mixture of one egg yolk in 10 cc. distilled water.

Boil vigorously for 15 minutes to coagulate the egg. Allow to stand until flocculence of the egg has occurred.

Filter through glass or steel wool carrying out the filtration in an Arnold steam sterilizer at a temperature just hot enough to keep the agar liquid. The filtrate should be crystal clear.

To every 100 cc. of clarified agar-agar add one gram levulose, C. P., (from Inulin-Pfanstiehl, C. P.) and 2.5 cc. of 0.5 per cent aqueous solution of bromcresol purple indicator. Mix thoroughly.

Place in 10 cc. quantities in test tubes for storage. Plug with absorbent cotton.

Sterilize in autoclave at from 5 to 7 pounds pressure for 45 minutes. Incubate three days for sterility.

If the medium is made in large quantities it keeps better in screw cap bottles than in cotton plugged tubes.

Before pouring plates of this medium, 10 to 12 per cent of ascitic fluid or human blood plasma is added to the agar when cooled to from 50 to 55° C. Small 75 by 10 mm. petri dishes are used.

The specimen to be diagnosed is obtained by separating the labia, cleansing the external genitalia if necessary, and introducing a tightly rolled sterile swab as far up into the vagina as can be done gently. This swab is streaked onto an agar plate immediately. We feel that this immediate planting of the specimen is a great factor in the successful culture of gonococci.

The Pyridium used in this work was supplied by Merck and Company.

From the Department of Obstetrics and Gynecology, Washington University School of Medicine, the St. Louis Maternity Hospital and Barnes Hospital.

A direct smear is also made at this time. The plates are left upright and are incubated at 37°. Growth is optimum between 18 and 36 hours after inoculation. The typical gonococcus colony is a pin-head sized, raised, watery or pearly area. Smears from such colonies reveal typical gram-negative diplococci. During the last two years we have had no difficulty with this cultural method.

The excellent results obtained with the use of pyridium in urinary infections of coccal origin instigated the use of this drug in the treatment of gonorrheal vaginitis. Also, for the last seven years, glycerin[1] has been used in this hospital as the solvent for the drugs used as antiseptic vaginal instillations which are part of the routine management of labor. Therefore these two agents were combined as a solution of pyridium in glycerin. At first, a 1 per cent solution was prepared and gradually the concentration of pyridium was increased until a 4 per cent solution was being used.

After a definite diagnosis had been made the parent or guardian was instructed in the technic of treatment. Six inches of Dakin's tubing was fitted to the glass tip of a one fourth ounce

Chart 1

Patient's Number	Age	Race	Smear	Culture	Treatment*	Duration of Treatment	Remarks	Follow-Up
16	8 years	W.	Positive	?	1% P-G instillation q P. M.	12 weeks	Slow response	Lost.
28	8 years	W.	Positive	Positive	1% P-G instillation q P. M.	12 weeks	Secondary anaerobic infection	Lost.
17	9 years	N.	Positive	?	1% P-G instillation q P. M.	8 weeks	Secondary mixed infection	No discharge. Smear and culture negative for G. C. 2½ years later.
22	6 years	N.	Positive	?	1% P-G instillation q P. M. Pyridium Tab. i B. D.	12 weeks	Secondary anaerobic infection	No discharge. Smear and culture negative for G. C. 2 years later.
21	8 years	W.	Positive	?	2½% P-G instillation q P. M.	4 weeks	Secondary anaerobic infection	No discharge. Smear and culture negative for G. C. 2 years later.
23	2 years	N.	Positive	Positive	2½% P-G instillation q P. M. Pyridium ½ Tab. O. D.	8 weeks	Secondary anaerobic infection	Slight discharge. Smear and culture negative for G. C. 2⅓ years later.
31	2 years	N.	Positive	Positive	2½% P-G instillation q P. M. Pyridium ½ Tab. O. D.	10 weeks 4 weeks		Slight discharge. Smear and culture negative for G. C. 2 years later.
15	9 years	N.	Positive	Negative	4% P-G instillation q P. M. Pyridium Tab. i B. D.	6 weeks	Reinfection 8 months later. Same treatment for 3 weeks	No discharge. Smear and culture negative for G. C. 18 months later.
6	6 years	N.	Positive	Positive	4% P-G instillation q P. M. Pyridium Tab. i B. D.	5 weeks		Slight mucoid discharge. Smear and culture negative for G. C. 2 years later.
32	6 years	W.	?	Positive	4% P-G instillation q P. M. Pyridium Tab. i B. D.	4 weeks		Lost.
70	8 years	W.	Positive	Positive	4% P-G instillation q P. M.	5 weeks		Smear and culture negative for G. C. 9 months later.
B. H.	16 months	N.	Positive	Positive	4% P-G instillation q P. M.	9 weeks		Lost.
72	3 years	N.	Positive	Positive	4% P-G instillation q P. M.	20 weeks	Uncooperative. Treatment sporadic	Lost.
J. T.	2 years	N.	Positive	Positive	4% P-G instillation q P. M.	8 weeks		No discharge. Smear and culture negative for G. C. 9 months later.
77	20 months	W.	Positive	Positive	4% P-G instillation q P. M.	5 weeks		No discharge. Smear negative 9 months later.
55	3 years	N.	Positive	Positive	Pyridium suppository q P. M.	8 weeks		No discharge. Smear and culture negative for G. C. 20 months later.
71	6 years	W.	Positive	Positive	Pyridium suppository q P. M.	9 weeks		No discharge. Smear and culture negative for G. C. 9 months later.
78	2½ years	W.	Positive	Positive	Pyridium suppository q P. M.	5 weeks		Lost.
73	9 years	W.	Positive	Positive	Pyridium suppository q P. M.	8 weeks		Smear and culture negative for G.C. 3 and 6 months later.
76	8½ years	W.	Positive	Positive	Pyridium suppository q P. M.	8 weeks	Uncooperative	Smear negative 6 months later. No discharge 9 months later.
75	10 years	N.	Positive	Positive	Pyridium suppository q P. M.	5 weeks		No discharge. Smear and culture negative for G. C. 6 months later.

* All pyridium treatments given at bedtime. A cleansing douche of 1:1500 $KMnO_4$ was given every morning in all cases.

Asepto bulb syringe. One teaspoonful of the pyridium in glycerin solution was drawn into the syringe. The Dakin tubing was inserted high into the vaginal canal and the solution forced out. This procedure was carried out every night and the child was requested to stay in bed until morning.

The next change was necessary because of the difficulty which the adults experienced in handling the solution, chiefly due to the physical state of the medicine and the unwieldy syringe and tubing. Therefore, vaginal suppositories were prepared containing 0.16 gram pyridium in a base of boroglyceride of gelatin. These are of such size and taper that they readily slip into the vagina distending the hymenal ring slightly and do not return because the size of the base of the cone is sufficient to stop at the hymen. The boroglyceride of gelatin base is soft enough to allow easy insertion of the suppository. The treatment is given at bedtime so that with the child at rest the pyridium, as the suppository melts, comes in contact with the entire vaginal mucous membrane.

We observed that with persistent treatment cellular debris and pus collected. Also after cessation of treatment secondary infection, especially with the foul odored anaerobic organisms, occurred occasionally. Therefore a cleansing douche of 1:1500 $KMnO_4$ was added to the treatment. However, consecutive cases demonstrated a negative smear and culture for gonococcus before the potassium permanganate douches were started.

Pyridium was given by mouth to several patients. No marked difference in response was noted.

At present, the treatment consists of a vaginal suppository of 0.16 gram pyridium in a boroglyceride of gelatin base inserted every night followed by a 500 cc. 1:1500 $KMnO_4$ douche via Dakin tube under very low pressure every morning.

Under such regimé the duration of treatment has been reduced gradually so that with a cooperative family the average treatment extends from four to eight weeks.

SUMMARY AND CONCLUSIONS

The mode of treatment of gonorrheal cervicovaginitis in the Washington University Clinics is discussed.

The treatment is simple, easy of performance and effective.

Note: Two recent cases of gonorrheal vaginitis in children were treated with theelin injected hypodermically as advocated by Lewis. Both responded to the treatment within five weeks and have remained free of discharge for an additional four weeks since cessation of treatment. However, the duration of treatment was approximately the same as above outlined and the expense was greater. The possible biological danger of the large amounts of theelin must be considered.

We wish to express our thanks to the Metropolitan Pharmacy, Inc., for the preparation of the suppositories.

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St. Louis Maternity Hospital.

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ABDOMINAL LITHOPEDION DEVELOPING FROM A TWIN PREGNANCY

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The following case is reported because of certain unusual features.

CASE REPORT

Mrs. M., aged 43, engaged in housework, entered hospital May 14, 1933, with a history of having been seized with griping pain in the umbilical region forty-eight hours before. Three hours after the onset of the attack, she began to feel nauseated but she did not vomit. At the end of twelve hours the nausea had ceased and the pain had shifted to the right lower quadrant. It was no longer paroxysmal but was described as a dull, aching sensation materially relieved by keeping the right thigh flexed.

The past history is essentially negative except as related to the present complaint.

The patient states that she began menstruating at the age of thirteen years and that the menses recurred regularly every twenty-six days and were normal in amount. There was no dysmenorrhea. She married at the age of sixteen, divorced her husband six years later and has since remained single, a period of twenty years. Menstruation occurred two weeks after marriage. It was then absent for nine and one half months because of pregnancy. After ten months' lactation menstruation was reestablished and has recurred every twenty-six days until the present time. The flow has been normal in amount and duration except for the last six periods when it has lasted two days longer than usual. These six periods have also been accompanied by cramping and a sensation of great pressure on the bladder and rectum, which has been present at frequent intervals during the last six months but always more pronounced during menstruation. Since the last menstrual period, which occurred two months prior to the present illness, the sensation of pressure on the bladder and the rectum has been constant.

The patient relates that about eight weeks after marriage, six weeks from the menstrual period, while doing her laundry work she was seized with a colicky, sickening pain "in the left side low down" which caused her to faint. She was carried to the bed and since her physician could not be located a hot water bottle was applied. About three hours later the pain had en-

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tirely subsided but there remained much local tenderness which persisted until her confinement. During the latter months of pregnancy the patient was very uncomfortable, complaining of bladder and rectal irritation. She states that her abdomen was unusually large and that her physician told her he suspected twins. Labor lasted for thirty-six hours and she became very much exhausted before an anesthetic was administered and the child delivered by forceps. The child was a normal female infant weighing seven and one half pounds. The abdomen remained rather large after delivery and did not seem to regain its normal contour.

A month after delivery her physician made an examination and stated, according to the patient, that what he had believed to be another child was a tumor attached to the womb or ovary. A year later she was examined by another physician who made a diagnosis of fibroid tumor of the uterus and advised operation. But since she was experiencing no discomfort she did not heed this advice nor has she consulted any other physician until the present illness.

Physical Examination.—The patient is a well developed woman, lying on her back with the right knee flexed. Temperature 99.8; pulse 110; respirations 22; blood pressure 130/90. The head and chest findings are negative. The abdomen shows marked rigidity over the lower portion, more definite over the right rectus, and extreme tenderness over McBurney's point. Ligat's sign is positive. Bimanual pelvic examination reveals a movable round mass apparently the size of a grapefruit extending into the hypogastrium. An irregular hard mass can also be palpated in the culdesac and felt through the wall of the rectum.

Tentative Diagnosis.—(1) Acute appendicitis and (2) calcified fibromyomatous uterus.

Operation.—A suprapubic midline incision was made and the acutely inflamed appendix was removed and the stump inverted. A lithopedion was discovered lying transversely, adherent to the omentum and floor of the culdesac, and was removed. The omentum was detached from the fimbriated extremity of the left tube and a fibromyomatous uterus was removed supravaginally together with both tubes and the left ovary, which was cystic.

The patient was discharged from hospital May 25, 1933, eleven days after admission.

Gross Pathology.—The specimen consists of an appendix, uterus with both tubes attached, an ovary, omental tissue and a calcified fetus (lithopedion) and a separate portion of the fetal right lower extremity, also enveloped in omental fat. The wall of the appendix is thickened.

The uterus measures 115 by 110 by 65 mm. A pedunculated subserous fibroid, measuring 38 mm. in diameter, is present. A large intramuscular fibroid, displacing the uterine cavity to one side, is seen and measures 90 mm. in diameter. The fimbriated ends of both tubes are occluded. The surfaces are covered with exudate. The walls are thickened. A cyst of Morgagni is attached to one tubal extremity.

The ovary is flattened measuring 45 by 30 by 8 mm. It contains a corpus hemorrhagicum.

Several masses of fatty, fibrous omentum measuring up to 90 mm. in diameter are also present.

The fetus measures 150 mm. from crown to rump. The body is entirely calcified. The head measurements are: Bregma-occipital 80 mm., bregma-mentalis 90 mm. The external configuration of the head shows the right auricle calcified. Dilated vessels are present over the surface of the head. Fatty omental adhesive tags are present, most marked over the back and lower extremities. The left lower limb and the two upper extremities are readily recognized as such and in somewhat fetal position are attached firmly to the torso. Even the carpal and metacarpal bones of the left hand are recognizable. The right lower extremity is received separately and is covered with fatty omentum.

Gross Anatomical Diagnosis.—Lithopedion (abdominal) covered with fatty omentum. Fibromyomata uteri (intramural and subserous). Chronic bilateral salpingitis. Chronic appendicitis.

COMMENT

In view of (1) the menstrual history which was practically normal from the age of thir-

Fig. 1. Lithopedion removed from patient May 14, 1934. Fibromyomatous uterus and tubes removed from same patient.

Fig. 2. Roentgen ray of lithopedion.

teen up to the time of the operation and was interrupted only during pregnancy and lactation; (2) the sudden pain in the left lower quadrant accompanied by symptoms of shock occurring six weeks after the menstrual period; (3) the supposed presence of twins before confinement; (4) the prolonged and difficult labor, resulting in the birth of only one child; (5) the diagnosis of uterine or ovarian tumor made one month after confinement and that of a uterine fibroid made one year later, and (6) the finding of the lithopedion at the time of operation, we are forced to conclude that:

1. Before the sudden pain in the left side which occurred eight weeks after marriage, there were present two pregnancies, one uterine and the other tubal.
2. A tubal abortion then occurred, resulting in the tubal pregnancy being changed into an abdominal pregnancy.
3. The long and difficult labor was occasioned by the presence of coexisting abdominal pregnancy.
4. The abdominal pregnancy accounts for the diagnosis of twins.
5. The abdominal pregnancy resulted in the death of the fetus and, as revealed in the operative findings, this was followed by its dehydration, exsiccation and calcification with resultant lithopedion.
6. The operation further disclosed that the fetus was lying transversely completely enveloped in the omentum and, no doubt, received its vicarious circulation from the same as it was unattached to any other structure.
7. Since both tubes were patulous (as revealed by injection of air) between the uterus and the sealed fimbriated extremities, the product of conception must have been extruded from the distal end of the tube.
8. The evidence would show that this expulsion occurred on the left side as the omentum was firmly attached to the fimbria on this side; thus the pathology corresponds with the clinical symptoms.
9. The fibroid tumor, as described by the pathologist, did not exist before normal delivery; such a uterus would not have tolerated a pregnancy up to full term, neither would the tumor have developed to the extent of being perceptible in so short a time as one month after delivery.

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Ice cream is a splendid dairy product containing various ingredients such as cream, whole milk, condensed milk, dry milk, eggs, sugar, harmless coloring, fruits and nuts, and flavored with extracts.

Ice cream, like milk, has in it carbohydrates, fat, proten, vitamins and even some mineral matter. Ice cream is more than an ordinary food. It is no longer considered a luxury but should be placed on the list with our other stable foods.

Children may eat good ice cream with their meals; the aged when other foods do not seem to agree with them will find ice cream a wholesome and strength-giving product. The undernourished and those under weight will find no better food than ice cream. Those convalescing from disease or those with run-down systems can often profit by regular consumption of ice cream both as a dessert at mealtime and between meals.

Whether young or old our diets require proper guidance through the right foods. The human body is like the automobile, it needs the proper fuel. The average ice cream contains, in addition to butterfat, a large proportion of milk solids-not-fat. Ice cream, therefore, contains the bone and tooth building minerals, calcium and phosphorus. A one sixth quart serving of ice cream contains nearly two thirds as much calcium as does a full cup of milk. This has a practical importance in meeting daily food problems, particularly since calcium is probably more often lacking in the average diet than any other one factor. The proteins in ice cream are the same as those found in milk. They are of superior value for body building and repair. One serving of ice cream furnishes three fourths as much of this protein material as does one full cup of milk.

Professor of Dairy Manufacture, University of Missouri.
A radio talk over WOS, June 6, 1934.

The vitamins in ice cream are likewise the same vitamins found in milk. Vitamins A and D are in the whole milk and cream of the ice cream mixture. Vitamin G and a small amount of B and C are present in the solids-not-fat of milk.

Fruits of various kinds are being used very extensively in the manufacture of ice cream and are recognized by all as being very healthful. Our ablest physicians recommend the consumption of fruit.

Sugar, another well recognized food, finds its way into ice cream. It is well known as a fuel food, giving both heat and energy to the body. During a nervous strain or at the time the body is brought under pressure of excitement, a small quantity of sugar such as is present in ice cream has a tendency to stimulate the nervous system and aid in overcoming exhaustion.

Eggs are being used quite extensively in the manufacture of ice cream inasmuch as they are considered one of our most healthful and nutritious foods.

For any occasion ice cream is the ideal dessert. In addition to its delightful flavor, ice cream is an economical dessert which can be purchased in the ready-to-eat form thus relieving the housewife of any additional accompaniment.

The frozen desserts offered the consuming public today are recognized as being highly nutritious, palatable and safe. The quality of ice cream has been very decidedly improved during the last ten years due to the improvement in methods practiced and equipment used in the manufacture of ice cream. Today we find throughout the entire State of Missouri ice cream plants which are monuments to the industry. The personnel of these plants is comprised of men who have a thorough understanding relative to every detail involved in the manufacture of quality ice cream. A trained man is in constant supervision of each point of operation in practically all plants. This man is charged with the responsibility of making a selection of the highest quality of milk and cream and other products which are used in the preparation of the ice cream mixture. He has a scientific understanding relative to each method and practice followed in the operation of an ice cream plant. One of his most important duties is to see that every product used in the ice cream mixture is efficiently pasteurized at a temperature of 145 degrees Fahrenheit, thus making certain that all bacteria are killed and that the resultant ice cream may be safe for the consumer.

A tour through a modern ice cream plant is the best way to become acquainted with the scientific methods practiced in the manufacture of the ice cream which your family consumes. On entering the ice cream plant, the spotless condition of the factory impresses one of the absolutely hygienic conditions which prevail. The men who work in the plant are attired in clean white uniforms and everything about the plant speaks of the utmost cleanliness. After you have toured through an ice cream plant and observed the interesting processes such as mixing, pasteurizing, homogenizing, cooling, aging, and freezing, you will be amazed at the great development which has taken place in the ice cream industry and the rigid requirements that are so necessary in the manufacture of a wholesome, safe ice cream.

Thus far I have endeavored to bring to your attention the different ingredients used in the manufacture of ice cream and the methods practiced in its manufacture. In addition to the untiring efforts of the ice cream manufacturer to furnish the consuming public with an ice cream of unquestionable quality comes the rigid inspection by the officials of the State Department of Agriculture and the State Board of Health. The State Department of Agriculture employs a corps of trained men who make a very exacting and exhaustive inspection of each ice cream plant with definite frequency. The slightest defect which may be present in an ice cream plant is brought to the attention of the manager and he is instructed to correct the same immediately. Absolute cleanliness of the building, equipment and personnel operating the plant must exist, with the result that the sanitary regulations as prescribed by law must be lived up to by every ice cream plant.

In addition to the rigid inspection of the ice cream plants by the State Department of Agriculture, the State Board of Health also plays a very important part in safeguarding the quality of ice cream offered the consuming public. This department also employs a large number of inspectors located in different parts of the state who operate under rigid instructions and it is their duty to thoroughly inspect every drug store, confectionery and restaurant for the sanitary conditions which exist in those places where ice cream is sold to the consuming public. These inspectors are technically trained men who appreciate the fact that necessary safeguards must surround such important foods as ice cream. They protect ice cream and other frozen desserts from contamination and the existence of any condition which

might tend to jeopardize the healthfulness, the quality and the flavor of ice creams. The State Board of Health under the leadership of Dr. E. T. McGaugh has been very instrumental in improving conditions under which ice cream is merchandized to the consuming public. The standards of the ice cream industry of Missouri have been elevated through the splendid cooperation of the State Board of Health and other agencies. It can be said that the efforts of these different agencies is assuring the consuming public of receiving ice cream that is safe, wholesome and highly nutritious.

Men in authority and who occupy offices of great responsibility such as that of Dr. E. T. McGaugh, State Health Commissioner, recognize ice cream, in fact all frozen desserts, as being very essential to the welfare of our present generation. They realize that ice cream is given to the well child but is advantageously prescribed for the malnouished and the sick child. The best dietitians acknowledge that enjoyment of food is essential to digestion. They recognize ice cream as a delicious health food that will answer all the requirements of a complete food easy of digestion, high of nourishment, easy of preparation and economical in money cost. Fagged appetites go along with warm weather. Favored dishes that tempt us one day become almost distasteful the next. To retain energy and activity during the summer one must eat such nutritious foods to provide body fuel. Ice cream is probably the best cool dessert obtainable because of its high food value and its universal appeal to jagged or active appetites alike. When fresh fruits are in season, combinations of ice cream with strawberries, crushed berries or sliced fruits are excellent.

Dr. M. D. Munn, President of the National Dairy Council, gives the following reasons for the use of ice cream in the daily diet:

"Ice cream contains the best known form of protein for muscle building; it contains mineral matter essential to proper development of bones and teeth; it contains butterfat and sugar for energy and body fuel; it contains the various vitamins necessary for growth, assimilation and body development; it is easily digested and all of the food elements are of the best quality and in an easily assimilated form; and it contains all of the food elements of milk and can be classed as a protective food."

Dr. E. V. McCollum, Professor of Biochemistry, School of Hygiene and Public Health, Johns Hopkins University, says:

"There are many mothers who testify that their children dislike milk as a beverage and ask how it is possible for them to introduce a sufficient amount of dairy products into their diet. One of the answers to this question is ice cream. Almost without exception persons of all ages like it."

Dr. F. Lyman of the Ohio State University, says:

"Ice cream is especially rich in lime, containing from 30 per cent to 50 per cent more than does milk. One half pint of ice cream contains as much lime as one and one half pounds of bread, four pounds of meat, or three and one half pounds of potatoes. It is well known that growing children require a high percentage of lime in order to produce bone and other tissues."

Ice cream, America's most excellent health food, is a safe food for young and old inasmuch as it is manufactured and sold under rigid sanitary and health requirements. Ice cream is no longer a luxury but has now become a part of our daily diet.

THE SOYA IN EVERY HOSPITAL AND HOME

ROY H. MONIER

CARROLLTON, MO.

I became interested in the soy bean about four years ago when I read of the magnitude of the business in Manchuria, Korea and Japan. In conference with a man who had lived in Korea for twenty years, I was convinced that the soy bean was well worth adding to the diet of the 8000 patients in the state hospitals of Missouri. As I was chairman of the Board of Managers of the state hospitals at that time, I started to arrange to produce the edible varieties on the grounds of these institutions.

It was indeed a difficult and discouraging task to find in the United States any seeds of these specimens of the soy bean. From many of the leading seed houses, in response to my request for the Easycook or the Hahto to be used for human food, I was informed that I was mistaken about the soy beans, as they were used only for hogs and cattle. After writing to many of the extensive producers in North Carolina, Maryland, and Illinois, I concluded that none was being raised for food in this country that I could purchase. Then I made a trip to Washington, D. C., and called at the office of Dr. W. J. Morse, the Chief Agronomist of the Department of Agriculture. Upon inquiry for the edible

Read at the national convention of the American Soy Bean Association, Baton Rouge, Louisiana, August, 1933.

soy bean I was informed by Dr. Hollowell, his assistant, that Dr. Morse was in the Orient at that time making extensive investigations as to the use of the soy bean for human food. Since the department was keenly interested in the same project that I was trying to develop on an extensive scale, I was presented with twenty pounds of Easycook and five pounds of Hahto seeds with which to begin. I brought these to Missouri and had them planted that year, 1929, in the gardens of five different institutions. From this start we expanded the plantings and in 1932 we produced 1600 bushels of the two edible varieties. Upon the maturity of the first crop in 1929, I wanted to be convinced, as all Missourians must be by being shown, so in my own home at Jefferson City we had three dinner parties at which we served baked soy beans to the guests without announcing the dish until after the dinner had finished. In the first one, state officials and their wives participated with hearty approval. At the second, my daughter, a senior in Missouri, invited her college boy and girl friends, and the baked soy beans passed the critical and delicate palates without criticism, but with enthusiastic approval. Then for the third degree, for what was then becoming my hobby, we invited a group of scientists from the University and various parts of Missouri to our home to dine. When the baked soy beans were served the second time to every guest with approval, it was concluded they were suitable food to be served to the patients in the state hospitals.

So during the last three years soy beans have been served to patients in the four mental hospitals and the school for feebleminded in Missouri. The most extensive use has been in bread. The bread with 20 per cent of soy bean flour has proved very nutritious and palatable. The toast made from this bread has been very popular, being more "chewy" and not so brittle as the ordinary toast on account of the large per cent of oil in the soy bean.

Cookies and cakes made with this flour have also been of benefit on the menu. The flour used has been made from the whole bean, hence the full benefit of the oil has been realized.

Another satisfactory method of serving them is with chili; the patients seem to enjoy them especially in this way.

One difficulty with our people in the use of the soya for food is the lack of proper preparation. Prejudice is a sentiment that plays a very important and costly part in our national life and habits. The fact that soy beans have always been considered hog and cattle feed in this country sets up a prejudice with the cook, the housewife or the family, when the first trial of the soy bean is made, hence they may be hurriedly and only partially prepared according to the recipe. The tendency is to boil them and prepare them for the table in a manner similar to the process used in cooking the navy bean. This cannot be done and have a palatable dish for they are quite different from the navy bean. Hence I use the word "soya" in reference to them, as the word "bean" is misleading as a descriptive name for them. The preparation of the baked soya requires no more time or trouble than when the navy beans are baked according to the recipe for Boston baked beans.

The following recipe has proved to be a dish of peculiar and delightful flavor and palatability:

Soak two cups of Easycook soy beans overnight. Pour off water and cover with fresh water and then cook for thirty minutes. Pour off water again and put on fresh water and cook about one and one half hours or longer, until beans are tender. Take about two cups of tomato pulp; one half medium sized onion cut fine; a slice or two of green pepper cut fine; three large stalks of celery cut fine, one half teaspoonful of salt. Cook together until vegetables are done. Add these to cooked soy beans together with a large tablespoonful of molasses; add two slices of bacon on top if desired for flavor, then bake for one hour.

As the beans contain much fat, it is obvious that they do not need fat meat added to them in cooking to supply this constituent though some prefer to use a very small quantity to give flavor.

A satisfactory recipe for roasted soy beans is as follows:

Soak soy beans overnight in salt water, then simmer for one half hour below the boiling point in the water in which they were soaked. Spread out in a shallow pan and roast slowly in the oven for 45 minutes (stirring occasionally) to a light brown color.

Fry the roasted beans one half to one minute in deep fat, as salted nuts or potato chips are fried, at a temperature of 360 to 370 degrees F. Spread out on paper to drain. They can be salted while hot. Can also be rolled in cinnamon and sugar while hot.

It is necessary to have the edible variety for such preparation. The Easycook is the most practical in our experience.

The Hahto and the Mames are splendid to prepare as we do the butter bean or lima bean. They are very rich and nutritious when prepared with cream. Many who try to hull them green are very severe in their

denunciation as the hulls are very tenacious and a fine filament sticks to the beans after they are hulled. But if the beans as they are brought in from the garden are allowed to boil in water about three to five minutes, the hulls will come off as if a zipper had been attached to them and the filament will also be detached from the beans.

Thus, many objections and prejudices may be removed if proper care and consideration are given.

In Dr. Morse's book, "The Soybean," you will find eighty-six different recipes for the preparation of the soya for human food. He states that "The ordinary varieties of soy beans, as the Mammoth, Midwest, Ito San, and others, require a longer period of soaking and cooking than navy beans. The Easycook and Hahto varieties need no more preparation than the ordinary bean, as they cook up very readily. Time may be saved by using a pressure cooker, for they soften very readily when thus treated. It is well to soak the beans and then cook them until soft."

Soy bean bread has been used extensively for the last three years in three of the Missouri institutions. Dr. E. E. Brunner, superintendent of the State School at Marshall, Missouri, in 1932, considered them helpful in many ways in the patients' diet; especially as a laxative were they beneficial. It is estimated that in the institution where 1000 were fed soya bread with 20 per cent soya flour three times a day, that the amount of Epsom salts purchased was reduced over one third.

Not only are they beneficial to chronic constipation but the soya food is well adapted to the needs of the diabetic patient. In one instance it has been found that the sugar disappeared from the urine of a diabetic after ten days using soya bread with 20 per cent soya flour, and that after one week, using bread with only 5 per cent soya flour, the sugar reappeared in the urine.

Not more than 500 pounds of soya flour was stored as it becomes rancid if allowed to stand; and the beans should be kept in a cool dry store room. Certain treated flours can be kept satisfactorily and can be used in many helpful ways for the well and the sick. Some soya flour chemically processed has kept unchanged for two years.

Modern diabetic dietary practice recognizes the necessity of a strictly controlled carbohydrate concomitant, giving urinic sugar negligible proportions; soya flour adequately fulfils these essential conditions. The composition of soya flour compared with that of other ordinary flours and daily foods, illustrates the propriety of it for diabetics:

Food	Protein per cent	Fat per cent	Carbohydrates per cent	Water per cent
Soya flour	42.0	20.0	24.0	9.0
Wheat	12.2	1.7	73.7	10.6
Rye	12.2	1.5	73.9	10.5
Rice	8.0	2.0	77.0	12.0
Maize	10.0	4.3	73.4	10.4
Navy beans	22.5	1.8	59.6	12.6
Peas	24.6	1.0	62.0	9.5
Beef steak	18.6	18.5	..	61.9
Pork chops	16.9	30.1	..	52.0
Eggs	14.8	10.5	..	73.7

From this table we see, first: That soya flour contains the two most valuable nutritive elements, protein and fat, in higher proportion than any of the other foods, and also possesses the highest total nutritive value, its protein contents being more than double that of meat. Second: That soya flour is quite different in its chemical composition from other flours, the principal constituent of which is carbohydrates, while soya flour is chiefly made up of protein and fat. It is, therefore, more to be compared with our chief source of protein, i. e. milk, meat and eggs, but is more nutritious inasmuch as it contains considerably less water and, therefore, more nourishment.

Dr. Morse states that "considerable differences of opinion have existed among investigators with regard to the presence of starch in soy beans. Some have not found any starch; others have found less than 3 per cent. Japanese chemists have not identified starch in the native soy bean. Undoubtedly the discrepancies relative to starch content have been due to the maturity of the beans, or rather the method in which they are allowed to mature. It has been found that where beans do not mature thoroughly, or when allowed to mature after the vines were cut, starch may be present, some varieties being more likely to contain it than others. If the beans are thoroughly mature they are practically starch free."

J. Sidney Cates in his article in the *Country Gentleman* entitled, "Soybeans go Domestic," describes the unusual quality of the protein in them. He refers to the studies of Dr. D. Breese Jones, of the Bureau of Chemistry of the United States Department of Agriculture, in determining why some proteins are better than others:

"Recently they have come upon the solution by pulling the big protein molecule apart by chemical processes, much in the same fashion that it is pulled apart during

the process called digestion. They have found that about twenty substances, all falling into a class called 'amino acids,' are linked together in some sort of way to make the substance we call 'protein.'

"Not all of these twenty amino acids are found in a single protein, and not all of them are necessary for animal or human nutrition. It has been found that a good protein must contain four of these twenty or more amino acids.

"This protein discovery ties in with the new human food soy bean introduction in a most dramatic fashion just at this time, having a plenteous amount of each of these four essential amino acids.

"These four are: Lycine, cystine, histidine, and tryptophane."

Navy beans, wheat and corn not only have less protein than soy beans, but the navy bean is lacking in cystine; wheat flour is deficient in lycine, and corn meal is deficient in two of the essential amino acids. Hence in both quality and quantity of protein the soy bean is outstanding in comparison with any other food.

According to Dr. Ferree: "Lecithin, of which the soya bean contains more than any other plant, is used in order to increase the nutritive value of various foodstuffs; furthermore, it is used in preparations for the care of nervous diseases."

The lecithin in soya is according to Dr. Jean Freud, identical with that in egg yolk.

Dr. R. A. Witthaus, the eminent chemist, in his "Manual of Chemistry" states that "Lecithin is a substance first obtained from the yolk of hen's eggs and subsequently found to exist in brain tissue particularly the gray substance, nerve tissue, semen, blood corpuscles, blood serum, milk, bile and other animal tissues and fluids. Nerve tissue, which is exceedingly complex in its chemical composition, and whose chemistry is still in a most rudimentary condition, seems to contain similar constituents in its different parts, which however differ materially in their quantitative composition."

The composition of white and gray matter differs quantitatively as shown below:

	Gray matter	White matter
Albuminoids	55.37	24.72
Lecithin	17.24	9.90
Cholesterin and fats	18.68	51.91
Cerebrin	0.53	9.55
Extractive matters, insoluble in ether	6.71	3.34
Salts	1.46	0.57

With lecithin as shown in the above table being over one sixth of the gray matter of the brain, it would seem that our feeding the soya products to patients with deteriorated brain and nerve tissues was fitting and proper.

The use of soya milk for tuberculous children or for those afflicted with ulcer of the stomach who are required to be on a rigid milk diet has been carried out with helpful results.

The chemically prepared soya flour according to Dr. Fearn can be used in making milk by simply putting three teaspoonfuls of soya flour in a glass of water, add a teaspoonful of sugar and a pinch of salt. The milk is so soothing to the digestive tract that it is often more digestible and practical than cow's milk.

In our experience in the feeding of soy beans and soya bread in the Missouri hospitals we found it better not to feed too many kinds of soya foods in one day or at one meal. They are quite laxative and should be eaten with moderation; yet used in this way they can be served at each meal in bread if desired.

From the standpoint of economics of nutrition, the soya is destined to play a most important part in the food problems of the day; particularly is it of interest to those concerned with the nutrition of the masses whose diet is nearly always deficient in proteins, vitamins and fats.

The two edible varieties used in Missouri, the Easycook and Hahto, have the following characteristics:

The Easycook was introduced into this country from China. Plants stout, erect, maturing in about 125 days; seed is straw yellow; two to three seeds to the pod. Oil 19.3 per cent.

The Hahto was introduced from Japan. Plants stout, erect, bushy, maturing in about 130 days; seeds two to three to the pod, color olive yellow; oil 17.9 per cent.

The soy beans we have used as the lima or butter bean in the green state have been the Mames. We received in 1932 a small quantity of four of the Mame varieties from Dr. W. J. Morse, Senior Agronomist of the United States Department of Agriculture, who had just received them from Japan. Three of these varieties were prolific producers. When these were hulled and cooked in milk or cream they were very palatable, nutritious and rich, and they were relished by every one fond of lima or navy beans. They have no strong flavor, are mild and pleasant to the taste and swell to a large plump size when cooked.

I feel that soya as food, including the flour, oil and the beans themselves, should

be encouraged throughout the country. It requires time to educate and interest the general public in a new food. The transplanting and general introduction of the potato into Europe took nearly 300 years. The utilization of the soya for food in the United States, out of the total produced in 1930 in this country, demonstrates the lack of knowledge of its advantages.

Statistics show that of 13,000,000 bushels produced, only one seventh was used for human food, and of 37,000,00 pounds of oil, only 6,000,000 pounds or about one sixth was made use of for the nourishment of man. While of the 110,000 tons of soy bean meal, only 900 tons, or less than 1 per cent was used in edible flour.

Although the acreage of soy beans has increased rapidly in the United States in recent years, more than half of the acreage has been cut for hay and the amount for food has not gained in proportion.

I feel that the American Soybean Association could render a great service to our country in this financial and economic crisis by starting a campaign of education relating to the advantages of the use of soya for food. Its cheapness of production and its richness of food properties, its many benefits for the sick and its ability to sustain and develop the adult and the growing child with its unique balanced ingredients, should be an appropriate and timely crop to plant in 1934 all over this country.

Dr. Schwicker, noted Hungarian chemist, in the interest of his country stated a few years ago that "It is of paramount interest in the question of hygienics and national economics that the extension of the soya consumption be materialized in the near future, and this can be accomplished chiefly by subsidizing the extension of soya consumption by the state."

When the benefits of the soy bean as a food are made known to the public there is a keen interest and reaction. During the fall and winter of 1932 and 1933 following the publication of Sidney Cates' article in the *Country Gentleman*, and others, I had inquiries for the edible soy bean from people living in thirty-two states and from Spain and Australia.

Sanford R. Gifford (Journal A. M. A., July 7, 1934) discusses the therapy of conjunctivitis as it is practiced by the members of the attending staff of the Cook County Hospital. The phases of the subject discussed include: conjunctivitis due to chemicals, acute catarrhal conjunctivitis (pink eye), gonorrheal conjunctivitis (ophthalmia neonatorum) and chronic catarrhal conjunctivitis.

MEDICAL ETHICS

O. B. HALL, M.D.
WARRENSBURG, MO.

The secretary of a medical society, like all clerical adjuncts to social organizations, is frequently and severely called upon concerning the activities of its members and the institution itself.

In view of certain minor matters which have arisen within our immediate medical practice during the last year or more and in behalf of our brother practitioners in adjoining counties, I am offering no apology for writing this paper as the secretary of the Johnson County Medical Society.

In the beginning, I wish to have it understood that what I have to say will have little or no bearing upon my personal opinion concerning the ethics as practiced by the members of the Society, either individually or collectively. And furthermore, I wish to state distinctly that I am not in a position or assuming an attitude, either to deny or affirm any statements or charges of misconduct on the part of any physician who is legally qualified to practice medicine; but rather, as your humble servant and secretary, I am assuming the duty of bringing to your minds a few of the reasons why medical men flounder upon the rocks in professional ethics and bring grief to their fellow practitioners.

The American Medical Association has given us a code to govern our conduct, toward both our patrons and other doctors; but like the statutory laws of our country which are subjected to the interpretation of fertile brained lawyers who are constantly finding loopholes through which almost any kind of decision may be forced, the code of ethics of the medical fraternity can only establish an outline of the regulations to govern the varied and intricate activities of practicing physicians in their efforts to please and satisfy the ever increasing demand of the general public for medical service.

It is ofttimes the little things in life which determine the greatness of a character and perhaps it may be said with equal veracity that the good of any organization may be estimated by the manner in which it observes and practices the minor details of management, including the character and activities of its membership.

Doctors, in their efforts to provide the necessary comforts of life for their families and build a reputation for ability in their

chosen profession, resort to their natural instincts to accomplish their most cherished aims in life just the same as other men in their respective vocations. Professional men, however, are trained and cultured for more or less uniformity in group or individual efforts. In other words, their activities are somewhat standardized in the hope and expectation that overt acts will not be committed detrimental to the community or that will cast the shadows of ignorance and superstition upon that particular profession.

Any member therefore of any professional class has a three-fold duty to perform; namely, first, to his fraternity; second, to his community, and third, to himself.

It is not easy to cast aside some of the little proclivities of selfishness and pet hobbies of body and mind for the more noble and inspiring attributes dictated by authoritative administrative power, and only too often does nature reveal itself in its most primitive form ignoring the established rules calculated to raise men to higher levels of living.

Thus will we find members of our own profession occasionally stealing away into the bypaths of originality, ofttimes some distance from ethical practice with perhaps no thought of harm to their fellow practitioners or the laity, but only to better their own condition or satisfy an exacting or perfidious clientele.

The old steam roller of superstition, religious dogma and professional ethics established centuries ago in the days of fundamental doctrines and empiricism still is passing over us somewhat ruthlessly and the fellow who publicly advocates birth control by the use of contraceptives is usually hushed into silence with inaudible gestures of disapproval, while the doctor who gives way to an off-brand feeling of sympathy for the girl who goes astray and lends his assistance to prevent further disgrace to herself and family has visions of incarceration where the sunlight only occasionaly trickles through iron bars for his momentary pleasure.

Again sympathy may rule the doctor's judgment when a "hard luck" story is either truthfully or falsely expressed and he charges a smaller fee for his services than do his fellow practitioners.

It often happens that supermercenary patients become peddlers of professional prices and the doctor learning of previous "bids for the job" offers to do the work for a greatly reduced fee.

Some physicians rather enjoy seeing their names in the daily papers accompaning the announcement of the arrival of a new baby in the neighborhood, or in connection with a surgical operation or some emergency case but not in connection with a death.

Organizations of various kinds today are becoming thorns in the flesh of medical men through requests to perform services of a special nature much below the regulation fees, such as medical examinations of school children in groups and vaccination of children against contagious diseases; all done, of course, for the general health of the community and the humanitarian interest in which all good citizens should share.

The good doctor is prone to fall for these allegations and cast his services into the balances with commercialism where the layman's interpretation of professional service is limited to the cash value of the enterprise.

Medical lore, verbally handed down from our predecessors, reveals the turbulent disposition of the doctor who threw the previously called physician's medicine out of the window with an attitude of extreme disgust and contempt for his treatment.

A little more refinement and culture today calls for less gross methods and so nowadays the second physician called gently and adroitly changes the diagnosis or sends to some distant city or perhaps to some foreign country to procure a "sure cure" that the first doctor probably knew nothing about.

It is not altogether unheard-of that some doctors orally promise to cure an incurable malady or condition after other physicians have told the truth about the condition.

When will we cease being so human that we impede the progress of the true medical science or stultify our consciences and ethical natures with selfish or whimsical philosophies?

Censure perhaps is not the requisite for such expressions of the frailties of human nature but rather should we resort to educational methods to correct the errors and mistakes of mankind.

Education is a broad term and covers every attribute of human nature. Released from the ties of social environment and higher instincts of the trained moral nature, man's reversion to original types is as natural as that of the lower animals or plant life in the vegetable kingdom. Hence, my appeal is for the intelligent and conscientious attempt in correcting what seems to be shortcomings in methods practiced by medical men.

No physician worthy the name and a

graduate of a reputable school of medicine would ever care to incur the displeasure and enmity of his fellow practitioners by resorting to unwholesome methods of practice if he realized the consequences.

The associations of medical men, such as we represent, should be so harmonious as to allow free discussion of conditions which may arise without fear of embarrassment or harsh criticism. Representing as we do one of the best and most highly educated professions, we have public duties to perform of great consequences and responsibilities and any acts of prejudice, deceit, malice, selfishness or violence done to the code of ethics as established by the by-laws or customs of the fraternity not only reflect upon the character of the members guilty of such conduct but lessens the influence and value of the entire fraternity.

Inasmuch as the practice of medicine covers and includes the great code of ethics which governs the acts of mankind in the realm of society, it is quite impossible to make rules for every detail of medical practice. Therefore, it devolves upon every practitioner of professional medicine first of all to realize, that he is a *man* and that to practice the Golden Rule is not only to crown himself with many blessings of mankind but also to reflect honor upon the entire medical fraternity.

Warrensburg Clinic.

CONCERNING HEREDITY IN DIABETES

ADRIEN BLEYER, M.D.

ST. LOUIS

We may no longer doubt that heredity plays a role in diabetes. Whether or not Mendel's ratio of 1 to 3 governing the reappearance of recessive unit traits exists in diabetes is somewhat less clear. This possibility is discussed by White, Joslin and Pincus[1] who noted the frequency of diabetes in homologous twins, its incidence among the relatives of diabetics and the frequent occurrence of hyperglycemia in members of the family of diabetic persons. Such studies are still new because they are necessarily incomplete and can approach completeness only through the reports of cases which add their modicum of light to the whole picture.

REPORT OF CASE

Mary D, aged 14, 1 inch and 27 pounds above average standards of growth. Diabetes appeared during the course of mild rheumatic symptoms at 10 years of age. She is and has been for some time a total diabetic.

The mother of this girl is 43 years old, 62 inches tall and weighs around 200 pounds. Some years ago she weighed 226 pounds. Fat distribution is of posterior lobe type. A year ago without apparent reason she began to complain of thirst and a dry mouth and of the necessity of arising once or twice each night. After these symptoms had existed for a week or so her urine was found to contain about 3 per cent of sugar. Response thus far to dietetic control has been favorable.

Mary D's father is 46 years old and well provided with life insurance secured as recently as two years ago. One year ago, however, sugar appeared in his urine and has been present in small amounts from time to time since.

Thus an oversize and overweight child became diabetic at the age of ten. Her mother, who suffers with obesity, became diabetic when the child was thirteen and her father when she was fourteen, in all of which one sees the hand of some genetic factor.

From the clinical side it now seems advisable, when finding sugar in a child's urine, to make a sugar determination of the parent's blood; nor would it be amiss to search for an hyperglycemia in blood relatives of diabetics generally, among whom potential and perhaps prediabetics will be found.

817 University Club Building.

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COSMETICS—PAST AND PRESENT

John Godwin Downing, Boston (Journal A. M. A., June 23, 1934), describes the use of cosmetics from ancient times to the present day and states that the various authors from 500 B. C. to the present day make frequent references to the use of cosmetics. Although women do and will continue to pay ridiculous prices for cosmetics that are of little or no value, still as a result of the efforts of the American Medical Association there is unquestionably an effort on the part of the manufacturers to prevent the selling of harmful substances, and the various associations of cosmetic manufacturers state that they will admit no one to membership who uses paraphenylene-diamine in their compounds. With such a tremendous increase in the cosmetic business there has been an alarming increase in the number of local disturbances of the skin, and some systemic results have also been reported. With proper labeling of the various cosmetics and with the cosmetic expert restricting his activities to hygiene, the proper cleansing of the hair, scalp and face, and if requested the application of facial adornments and using pure materials, there will be no loss of business; in fact, there will be an increase, for many women now who fear the use of cosmetics but envy their attractive neighbor may join the ranks, although the American women are rapidly ceasing to look like barbarians and agree that the best face is the natural face.

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AUGUST, 1934

EDITORIALS

MME. MARIE CURIE

The death of Mme. Marie Curie on July 4, 1934, marks the passing of one of the world's most noted scientists. Born of a scholarly family in Warsaw, November 7, 1867, she inherited the necessary aptitude for teaching and scientific investigation. Following her elementary school education she went to Paris at the age of 24 to enter the university under Becquerel, professor of physics. He it was who in 1896 discovered radioactivity in the element uranium which he isolated from pitchblend. This close association with the father of radioactivity fired the young scientist with ambition for research in this new line of endeavor.

About two years after graduation she met M. Pierre Curie who had just been made professor in the School of Physics and Chemistry of the City of Paris. From this acquaintance there resulted one of the most unique unions in the scientific world. These two young people both deeply interested in scientific investigation conceived the idea of a marriage dedicated to science in which their entire lives would be devoted to research, working jointly on all problems and sharing jointly in all accomplishments. With this point settled they bought bicycles with the bride's dowry and toured Northern France on their honeymoon.

The first fruit of their efforts was the discovery in July, 1898, of the new radioactive element polonium, named after Mme. Curie's native land. This was followed a few months later by the announcement of the discovery of another much more powerfully radioactive element, radium.

We as physicians think of the importance of this discovery in terms of its benefit to mankind in the alleviation of suffering and the cure of malignant disease. Perhaps a much greater benefit may accrue to humanity from the revolution which it produced in our understanding of the structure of matter. No one could have predicted the far-reaching developments which the discovery of radioactivity has already produced; nor can any one venture to predict to what end it may lead in the future.

The discovery of these new elements was only the beginning of the scientific research work necessary in determining their physical properties and the peculiarities of this new form of radiant energy. Alas, this had to be carried on in large part by Mme. Curie alone owing to the untimely death of her husband, Pierre, who was run down by a truck on the Paris streets in 1906 and killed. True to her original trust she continued in the field of research at the Curie Institute in Paris until the time of her death.

Many honors were bestowed upon her. She was twice the recipient of the Nobel Prize, once alone and once in association with M. Curie and M. Henri Becquerel. Perhaps, to her even a greater honor was that she was the only woman who ever was elected to membership in the French Academy of Science. She was honored by the women of America who in 1921 collected a fund of $100,000 for the purchase of one gram of radium which was presented to her on the occasion of her visit to America. In 1929 a second gram of radium was presented to her by the American women, which she in turn presented to the Curie Institute of Warsaw in Poland.

True scientist that she was she never accepted financial benefit from her work but gave her discoveries freely to the world for the benefit of mankind. She never used for her own benefit any prize money received in connection with any of her awards but turned it all into the continuation of research in her chosen field. The two grams of radium given her by the women of America she gave, one to the Curie Institute in Paris and the other to a similar institute in Warsaw for research in radioactivity.

There is another thing in the life of this unusual couple which should be an inspiration to the young scientists of today, namely; the undaunted courage with which they pursued their work in the face of disheartening circumstances. None of their research work was ever financed by anyone until long after their discovery of radium. They had only their own resources obtained by hard work from teaching physics and mathematics.

They were constantly harassed by the many difficulties of teaching and had to carry on their research work in whatever leisure time they could find. It is perhaps to this very fact that they owed the preservation of their health while experimenting with this dangerous material. Their researches were carried on in an old barn on the outskirts of Paris because they had no funds with which to provide more adequate quarters. Mme. Curie herself said that the cracks between the boards were so large that they had to stuff them with rags to keep out the cold in the winter time and often had to suspend operation on that account. It is perhaps because of this large airy structure that the radon gas continually emitted by the radium with which they worked in open dishes was diluted and dissipated and did not have the harmful effect on them that it did on so many others who have worked with it later in closer quarters.

True to her pact with her companion-husband she devoted her life to science until the very end. Overcome by an anemia which overtook her in the pursuit of her work with this dangerous substance, she fell sick to an intercurrent infection with pneumonia and died at Sallauches in the Savoy Alps, July 4, 1934. She was buried in a simple plain oak casket without civil or religious ceremonies beside her husband in the little cemetery at Sceaus, France.

She is survived by two daughters, Eve and Irene. The former has taken up dramatics and music, the latter has followed in her mother's footsteps and expects to carry on the work in research at the Radium Institute.

A movement has been started in France to place the bodies of M. and Mme. Curie in the Pantheon, an unusual honor especially for one not a native of France. However great such an honor might be, it does not compare with the reward she has already received in the knowledge of her benefactions to humanity. No monument of stone can compare with the memory which her life of devotion and achievement has left in the memory of mankind.

ANNUAL FALL CLINICAL CONFERENCE OF THE KANSAS CITY SOUTHWEST CLINICAL SOCIETY

The Kansas City Southwest Clinical Society will conduct its twelfth annual fall clinical conference October 1 to 4 at Kansas City. All scientific sessions will be held in the President Hotel starting each morning at 8:30 o'clock and continuing throughout the day.

Guests who will present addresses before the conference include Dr. Walter L. Bierring, Des Moines, President, American Medical Association; Dr. Hugh Cabot, Minneapolis, professor of surgery, University of Minnesota Graduate School of Medicine; Dr. Joseph B. DeLee, Chicago, professor of obstetrics and gynecology, University of Chicago; Dr. Morris Fishbein, Chicago, editor, *Journal of the American Medical Association;* Dr. Lee F. Hill, Des Moines, member, American Academy of Pediatrics; Dr. Samuel Iglauer, Cincinnati, professor of otolaryngology, University of Cincinnati College of Medicine; Dr. Samuel Levine, Boston, associate professor of medicine, Harvard University Medical School; Dr. Philip Lewin, Chicago, associate professor of orthopedic surgery, Northwestern University Medical School; Dr. H. O. Mertz, Indianapolis, clinical professor of genitourinary surgery, Indiana University School of Medicine; Dr. George Pfahler, Philadelphia, professor of radiology, University of Pennsylvania Graduate School of Medicine; Dr. Fred W. Rankin, Louisville, past professor of surgery, University of Louisville; the Reverend Father Alphonse M. Schwitalla, S. J., St. Louis, dean, St. Louis University School of Medicine; Dr. H. W. Woodruff, Joliet, Illinois, Woodruff Clinic.

Sectional lectures on pertinent medical subjects will be presented for two hours each morning by members of the society. These lectures will be in four concurrent sessions daily on non-conflicting subjects.

The public meeting on Monday evening will bring as speakers the Reverend Father Alphonse M. Schwitalla, St. Louis; Dr. Morris Fishbein, Chicago, and Dr. George Pfahler, Philadelphia, who will each bring a message of value to the laymen as well as the physician. Admission to this meeting will be free, by ticket only.

The scientific session of Tuesday evening will be sponsored by Kansas City medical societies and the Clinical Society with addresses by Dr. Samuel Levine, Boston, and Dr. Fred W. Rankin, Louisville.

Arrangements are being made for an evening entertainment on Wednesday at the William Rockhill Nelson Gallery of Art for the visiting doctors and their families. The alumni dinners and the president's dinner will be the closing features of the conference.

Each day two of the visiting guests will

take part in the round table luncheons bringing messages of a nonmedical nature which promise to be both interesting and relaxing to the listeners.

Many features of entertainment are being planned for the visiting women by the Kansas City women's committee and all visiting women are urged to register at the woman's registration desk to obtain information relative to the activities.

The Kansas City Society of Ophthalmology and Otolaryngology will hold a diagnostic clinic in the President Hotel Thursday morning in which Dr. Samuel Iglauer, Cincinnati, and Dr. H. O. Woodruff, Joliet, will participate.

BOARD OF HEALTH'S INTERPRETATION OF "UNPROFESSIONAL AND DISHONORABLE CONDUCT" UPHELD

A decision of the Sureme Court of Missouri is very far-reaching in its effect upon the control of the practice of medicine in Missouri by the State Board of Health. The decision as rendered in the case of Robert Lentine, Appellant, vs. State Board of Health, et al., September term 1933, is published in full on page 335 of this issue.

Many physicians and not a few attorneys have held that the language used in our statutes concerning the grounds upon which a license may be refused or revoked by the State Board of Health limits the causes for refusal or for revocation to the causes specified in the statute. The statute reads:

> The board may refuse to license individuals of bad moral character, or persons guilty of unprofessional or dishonorable conduct, and they may revoke licenses, or other rights to practice, however derived, for like causes, and in cases where the license has been granted upon false and fraudulent statements, after giving the accused an opportunity to be heard in his defense before the board as hereinafter provided. Habitual drunkenness, drug habit or excessive use of narcotics, or producing criminal abortion, or soliciting patronage by agents, shall be deemed unprofessional and dishonorable conduct within the meaning of this section.

Lentine's license had been revoked by the State Board of Health on the ground of unprofessional and dishonorable conduct and bad moral character. He contended that "unprofessional and dishonorable conduct" did not state facts sufficiently to constitute a cause of action for the reason that the statute defines "unprofessional and dishonorable conduct" as "habitual drunkenness, drug habit, or excessive use of narcotics, or practicing criminal abortion, or soliciting patronage by agents." The appellant further contended that the charge "bad moral character" was too vague, ambiguous, indefinite and uncertain to be enforced. The Supreme Court held that it was not the intention of the legislature to limit the grounds or causes for revocation of a license to practice medicine to the causes enumerated above and that "it would not be practical in carrying out the wholesome purpose of the statute to undertake to catalogue, list or specify each and every act or course of conduct which would or under what circumstances would constitute bad moral character or unprofessional and dishonorable conduct." The Court further said, "looking to the policy and object of our medical practice act as a whole we find it to be an exercise of the inherent police power of the state in the protection of its people attempting to secure to the people the services of competent practitioners learned and skilled in the science of medicine, of good moral character and honorable and reputable in professional conduct. The license granted places the seal of the state's approval upon the licentiate and certifies to the public that he possesses these requisites. This particular section of the medical act seeks to prevent an immoral or dishonorable person from procuring a license to practice medicine in this state or if a licensed physician is found to be of bad moral character or guilty of unprofessional and dishonorable conduct this section of the statute authorizes and empowers the board of health, the proceeding before the board with the right of review by the courts being prescribed, to revoke the license."

Thus is the State Board of Health fully fortified in keeping the quacks and undesirables out of the practice of medicine in the interest of public welfare and the profession itself.

In view of Lentine's declaration in his appeal to the Supreme Court that he was not conscious of having committed any acts that might be deemed dishonorable and unprofessional or that he had done anything to sustain the charge that he was a person of bad moral character we excerpt from the opinion of the Supreme Court a brief section of Lentine's career as follows:

> From the testimony of the relator, Lentine, it conclusively appears that he played a major part in the conspiracy (to obtain a license in Illinois by fraud). Lentine and certain others involved were indicted for such conspiracy and convicted in the criminal court of Cook County, Illinois, and Len-

tine was sentenced to imprisonment in the county jail for a term of two months which he served. The indictment was brought after Lentine had been granted a license in Missouri and in licensing him here our board of health apparently had no knowledge or information whatsoever of his prior participation in, or conduct in reference to, the corrupt and fraudulent schemes to circumvent and evade the law of the state of Illinois regulating and governing the practice of medicine and surgery in that state. From Lentine's testimony at the hearing by the board of health as well as an excerpt from his testimony in the criminal court of Cook County, Illinois, which he offered in evidence and which was made a part of the record in this case, we compile the following statement of his history and career and of the events which culminated in his indictment and conviction as aforesaid. It appears not unlikely that he has stated these matters in the most favorable light possible to himself. Lentine states that he was born and reared in Brooklyn, New York; graduated from Manual Training School in that city; "took premedical training at Long Island College Hospital; had a year and a half of medicine at the New York Homeopathic Medical School and in the sophomore year five of us boys felt we were going to flunk and we came to the St. Louis College of Physicians and Surgeons, spent two years there and graduated" from that school in 1922. Without further comment we observe here that in reading the testimony his purpose and motive in leaving the medical schools of his home state of New York and entering the St. Louis school is apparent. In 1923 he took the examination in this state for a license to practice medicine and surgery in Missouri but the board reported he had failed to pass and refused to issue a license. From 1923 to 1925 he was employed in St. Patrick's Dispensary in St. Louis. In 1925 he returned to the state of New York and remained there until some time in 1928 during which period he practiced medicine as "an assistant to Dr. Louis Levin" in Brooklyn. He had not yet obtained a license to practice medicine in any state but was desirous of, and intent upon, doing so. Whether the kind of work in which he engaged in New York from 1925 to 1928 was legitimate and legalized under the medical act of that state does not appear, however he was not licensed to practice medicine in that state. He had investigated or weighed the possibilities of taking the examination in Illinois. The board of that state seems to have been invested with discretion as to the admission of graduates of a certain class of medical schools to examination in that state and to have looked with disfavor upon this St. Louis College of Physicians and Surgeons from which Lentine had graduated. As Lentine at one time puts it: "I wanted to get admitted to the Illinois examination and couldn't on account of my graduation from P. & S. without the discretion of the Illinois Board." In May, 1928, a friend told him a Dr. Kalmus of New York City had contracts with the Illinois state board whereby it could be arranged for him (Lentine) to be admitted to the examination in that state. Lentine says he approached Kalmus who claimed that for two thousand dollars he could arrange the matter satisfactorily but Lentine informed him that "it was impossible for me to get" that amount of money. Later about July or August, 1928, Lentine again called upon Kalmus at the request of Kalmus. On that occasion, so Lentine relates, Kalmus asked him if he was acquainted with one Barron a former Brooklyn man who then resided in Chicago and who had attended the St. Louis medical school with Lentine. Lentine told Kalmus that he was acquainted with Barron and Kalmus then said, "Barron is the key man of Illinois" and related that he, Kalmus, for a consideration in money paid Barron had theretofore obtained, through Barron, licenses for several men who wanted to practice medicine in Illinois but who apparently could not meet the requirements of the Illinois law. However in a later case it seems Barron not only increased the price demanded of Kalmus but "pocketed" the money finally paid over and failed to deliver. Kalmus told Lentine that he (Kalmus) then had five or six "candidates," Connecticut men, who wanted Illinois licenses, and proposed that Lentine get in touch with Barron and pretend that he (Lentine) was handling the deal so that Barron would not know that Kalmus was involved. Lentine says he consented to undertake the enterprise on condition that Barron would agree to compensate him by obtaining permission for him to take the Illinois examination. As the writer understands Lentine's testimony, he claims Kalmus agreed and promised to pay all of his expenses in putting over the deal and until he was admitted to examination in Illinois. Pursuant to Kalmus' directions Lentine in New York, called Barron, in Chicago, by telephone, identified himself and stated the proposition, representing that he (Lentine) was acting for the six Connecticut men and told Barron they could pay six hundred dollars each. Barron replied: "All right, come on down with the six hundred for each." Whereupon Kalmus and Lentine went to Springfield, Illinois, registering at different hotels, Kalmus paying the expenses, and Lentine got in touch with Barron who made trips to Springfield, to see Lentine and carry on negotiations. After about two weeks Barron "boosted the price * * * said, 'we can't do it for six hundred.'" Lentine then was authorized by Kalmus, who remained all the time behind the scenes, to increase the offer to "eight or eight hundred and fifty dollars for each." The writer cannot definitely determine the amount finally agreed upon, that however, is immaterial. When an agreement was reached between Barron and Lentine, Barron demanded that one half be paid in advance. Lentine obtained the one half from Kalmus and paid it over to Barron. But the days passed and Barron failed to produce the six (or Lentine says at one place there may have been seven) licenses for the men back in Connecticut. Kalmus left the money with Lentine to pay the unpaid half of the graft money when and if Barron delivered the licenses and departed for New York. Some two weeks later Barron did deliver six or seven purported licenses to Lentine, received the balance of the agreed amount and promised to see that Lentine was admitted to examination in Illinois at the next regular time for same, the following November. Lentine then took the purported licenses to Kalmus in New York and presumably the six or seven Connecticut men entered upon the practice of medicine in the state of Illinois. Lentine says pursuant to the understanding with Barron he returned to Chicago in November at the time fixed for the medical examination but Barron advised: "You had better wait until next month when the Chicago Medical boys take the examination; it will be easier for you because they are all 'C' college men." Lentine's testimony as to this continues: "So I went back a month after but the morning of the examination, about ten o'clock, Barron comes up with a car to take me to the Board. I says, 'how can I take the Board at ten o'clock when the examination starts at nine o'clock?'" Lentine did not take the examination in Illinois and so far as appears never so

much as made application to the proper authorities to be admitted to examination. He states that after the December episode he became "disgusted" and left Chicago and went to St. Louis and "that was the last I heard of the whole thing until they arrested me here" (St. Louis) in 1929, about a year later.

NEWS NOTES

Dr. C. C. Dennie, Kansas City, has been appointed a member of the American Board of Dermatology and Syphilology

Dr. Hugh L. Dwyer, Kansas City, was elected president of the American Association of Medical Milk Commissions at a recent meeting in Cleveland.

The Christa Hogan Hospital, West Plains, reopened July 1 after being closed for more than three months. The hospital was originally opened in 1920 by Dr. R. E. Hogan, West Plains, and named for his mother.

Dr. Fred Emmert, St. Louis, was the guest of the Jackson County (Illinois) Medical Society at Murphysboro on May 22. Following a dinner Dr. Emmert spoke on "Recognition and Treatment of Cervical Conditions in Office Practice."

The Louise G. Wallace Hospital, Lebanon, was dedicated July 1. The building is a fireproof structure with a capacity of thirty beds. The hospital and equipment cost $50,000. Funds for the erection and maintenance were provided for in the will of the late Mrs. Louise G. Wallace.

Dr. W. McKim Marriott, St. Louis, dean of the Washington University School of Medicine, together with Chancellor George R. Throop of Washington University, is spending the summer in Germany visiting various German universities. Dr. Marriott will return about September 1.

Dr. M. Pinson Neal, Columbia, upon the invitation of the University of Tennessee, Memphis, is serving during the summer quarter as visiting professor of pathology and bacteriology at the University of Tennessee College of Medicine and as acting pathologist to the Memphis General Hospital. Dr. Neal held these same appointments during the summer quarter of 1932.

We learn that the name of Dr. C. H. Werner, St. Joseph, who attended the St. Joseph Session, was omitted from the list of members published in the July Journal. This is a regretful circumstance and we shall endeavor to prevent anything of the kind occurring at future Annual Sessions.

Dr. H. I. Spector, St. Louis, was appointed assistant health commissioner of St. Louis July 5 to succeed Dr. Paul J. Zentay who resigned April 1. Dr. Spector has served as city tuberculosis controller since February, 1932. In 1925 he was appointed city tuberculosis controller but resigned at the end of one year. The position of controller has not been filled.

A plaque in memory of Dr. William Carr Lane, physician and first mayor of St. Louis, and his two grandsons, Dr. William Carr Glasgow and Dr. Frank Adams Glasgow, has been presented to the St. Louis Medical Society by Mrs. Newton R. Wilson, St. Louis County. Mrs. Wilson is the granddaughter of Dr. Carr and a sister of the Drs. Glasgow. The plaque has been hung in the library of the St. Louis Medical Society building.

The St. Louis Medical Society held a memorial service May 29 for members who have died since January 1, 1933. Friends and relatives of deceased physicians were guests at the service. Dr. J. J. Link, St. Louis, presented the address. Physicians memorialized were: Drs. Henry Muetze, A. V. Marquardt, Henry K. Scherck, William Kerwin, Frederick C. Esselbruegge, William M. Robertson, Robert Burns, Wenzel C. Gayler, Harvey S. McKay, Milton J. Hopkins, Walter H. Fuchs, Harvey G. Mudd, Randall S. Tilles, John H. Coates, Albert Habermaas, Reinhart L. Hild, Edward H. Kessler, William J. Langan, Ernst Jonas and Otto L. Wolter.

The Rev. Alphonse M. Schwitalla, S. J., St. Louis, dean of the St. Louis University School of Medicine, has been appointed to a Special Committee on Medical Education and Hospitals of the American Medical Association. The committee will reexamine and reclassify the schools of medicine in the United States in collaboration with the Association of American Medical Colleges and the Federation of State Boards of Medical Examiners. The original classification was made by the Carnegie Foundation for the

Advancement of Teaching twenty-four years ago. There are seven other members of the committee who will undertake the reclassification.

A recommendation for the creation of a Tuberculosis Control Division in the State Department of Health made by Dr. H. I. Spector, tuberculosis controller of St. Louis, to a joint survey committee on tuberculosis problems has been approved by the committee according to Dr. George H. Hoxie, Kansas City, president of the Missouri Tuberculosis Association. The committee represents the Missouri State Medical Association, the State Department of Health, the State Eleemosynary Board and the Missouri Tuberculosis Association and convened in St. Joseph, May 7. The plan would provide for a full time director in the Health Department and a corps of trained workers to handle the rehabilitation and follow-up work on every case discharged from the various state sanatoria.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. M. Pinson Neal, Columbia, was the guest of the Bates County Medical Society at Butler on May 16 and spoke on "Cancer: A Public and Individual Problem."

On May 25 Drs. O. R. Sevin and Anthony Day, St. Louis, were the guests of the St. Francois-Iron-Madison County Medical Society at Bonne Terre. Dr. Sevin spoke on "Surgery of the Upper Abdomen" and Dr. Day discussed "Diagnosis of Diseases of the Upper Abdomen."

The Six County Medical Society had as its guests at Dexter on June 5 Drs. Melvin A. Roblee and Grandison D. Royston, St. Louis. Dr. Roblee addressed the Society on "Importance of the Cervix to the Practitioner" and Dr. Royston spoke on "Management of the Border-Line Obstetric Case."

Drs. Dudley A. Robnett and M. Pinson Neal, Columbia, were the guests of the Linn County Medical Society at Marceline on June 28. Dr. Robnett discussed "Skin Cancers" and Dr. Neal spoke on "The Anemias, Their Classification and Dominant Features."

The following products have been accepted by the Council on Pharmacy of the American Medical Association for inclusion in New and Nonofficial Remedies:

Bilhuber-Knoll Corporation
- Dilaudid
  - Ampules Solution Dilaudid, 2 mg. (1/32 grain), 1.1 c.c.
  - Hypodermic Tablets Dilaudid, 2 mg. (1/32 grain)
  - Hypodermic Tablets Dilaudid, 3.2 mg. (1/20 grain)
  - Hypodermic Tablets Dilaudid, 4 mg. (1/16 grain)
  - Tablets Dilaudid, 2.5 mg. (1/24 grain)

H. E. Dubin Laboratories, Inc.
- Aminophyllin-Dubin
  - Ampules Solution Aminophyllin-Dubin, 0.24 Gm., 10 c.c.
  - Ampules Solution Aminophyllin-Dubin, 0.48 Gm., 2 c.c.
  - Suppositories Aminophyllin-Dubin, 0.36 Gm.
  - Tablets Aminophyllin-Dubin, 0.1 Gm.

Gilliland Laboratories, Inc.
- Diphtheria Toxoid, Alum Precipitated (Refined)

Schering & Glatz, Inc.
- Medinal
  - Medinal Tablets, 5 grs.
  - Medinal Suppositories, 10 grs.

Frederick Stearns & Co.
- Neo-Synephrin Hydrochloride
  - Solution Neo-Synephrin Hydrochloride, 0.25 per cent
  - Solution Neo-Synephrin Hydrochloride, 1 per cent

Winthrop Chemical Co., Inc.
- Chiniofon-Winthrop
  - Tablets Chiniofon-Winthrop, 0.25 Gm. (4 grains)

The following product has been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Nonofficial Remedies, 1934, p. 443):

Cheplin Biological Laboratories, Inc.
- Cheplin's Epinephrine Hydrochloride Solution 1:1000
  - Ampules 1 c.c.

OBITUARY

FREDERICK CHARLES ESSELBRUEGGE, M.D.

Dr. F. C. Esselbruegge, St. Louis, a graduate of the Washington University School of Medicine in 1906, died at the Christian Hospital, May 22, 1933, following an operation for appendicitis. He was 49 years old.

Dr. Esselbruegge was born in St. Louis. The doctor received his preliminary education in

St. Louis then entered the Central Wesleyan College at Warrenton, Missouri. Finishing his medical course at the Washington University he spent one year at the University of Freifswald in Germany.

Upon returning to St. Louis he engaged in general practice on Eleventh and Farrar streets. Then he entered the World War as Captain in the medical department and was gone two years to serve his country.

On October 20, 1919, he chose as his life's partner Miss Lydia Hehman. To this union three children were given.

For a number of years he served on the staff of the Deaconess Hospital; for nineteen years he was on the staff of the Christian Hospital. The last ten years he held the position of internist on the Christian Hospital staff. He was also on the staff of the City Hospital; a member of the American Medical Association and held the following positions in the St. Louis Medical Society: 1929-30 a member of the ethics committee; 1932-33 a member of the membership committee up to the time of his death. He was a hard worker for the St. Louis Medical Society.

Dr. Esselbruegge will be greatly missed; he was esteemed and liked by his colleagues and was faithfully adherent to every ethical standard of the profession. He was very conscientious with his patients and was of a gentle disposition with every one he met. Dr. Esselbruegge was a man of high character.

He was ever ready to do a good turn for any one and often said that it was more blessed to give than to receive.

He was very religious; he clung to the church of his parents, the St. John Evangelical Church. He was devoted to his home and children.

Dr. Esselbruegge is survived by his widow and three children.

J. C. H.—in the Weekly *Bulletin* of the St. Louis Medical Society.

WILLIAM A. CLARK, M.D.

Dr. W. A. Clark, Jefferson City, a graduate of Washington University School of Medicine, 1897, died at his home of pneumonia April 11, aged 69 years.

Dr. Clark was born in Clarksburg. His early education was in the schools of that village which was founded by his grandfather nearly a hundred years ago. He attended college at Waynesville, Pennsylvania, where he was graduated in 1889 and taught school at Clarksburg and later became superintendent of the schools at Tipton. He had ambitions, however, of becoming a physician and prepared himself in the offices of Dr. R. S. Redmon of Tipton before attending Washington University School of Medicine. Immediately after his graduation he went to Jefferson City to practice.

Dr. Clark was an early and a loyal member of the Cole County Medical Society. He served several years as Councilor of the Nineteenth District. He was president of the Cole County Medical Society in 1932 and was delegate to the State Meetings in 1928, 1929, 1930 and 1931. In 1925 the State Medical Association conferred upon him the supreme honor within its gift by electing him president.

Dr. Clark served in several state capacities. He became surgeon and physician at the Missouri Penitentiary upon the resignation of Dr. G. L. McCutcheon in 1916. He served many years on the State Board of Health and was president of the board for a term beginning in 1925. He was the surgeon to the Penitentiary and a member of the Board of Health at the time of this death. He had been personal physician to eight governors of the state.

Dr. Clark was credited with organizing the Red Cross in Jefferson City and was active in the organization of the Cole County Tuberculosis Society.

Dr. Clark had many friends both within and without the profession. He was always interested in and helpful to the younger physicians. He filled a place both as citizen and physician that will not easily be filled.

Dr. Clark is survived by his widow, Mrs. Clara Clark, two daughters, three brothers and one sister.

FREDERICK B. HALL, M.D.

Dr. Frederick B. Hall, St. Louis, a graduate of Washington University School of Medicine, 1894, died at his home June 26 of pneumonia following an illness of several months. He was 65 years old.

Dr. Hall was born in St. Louis. His father was the late Dr. L. T. Hall, well known neurologist.

After his graduation Dr. Hall served on the staff of Barnes Hospital in the orthopedic department under his father-in-law, Dr. A. J. Steele. He soon became interested in the development of the roentgen ray discovered by Roentgen in 1895 and was one of the first physicians in St. Louis to specialize in this field. At different times he was the head of the roentgen ray departments of St. Mary's Infirmary, Missouri Baptist, Jewish, Deaconess, Missouri Pacific and City hospitals. He was one of the founders of the American Roentgenology Society.

Dr. Hall was a loyal member of organized medicine, as conscientious in his affiliation as he was in his work.

Dr. Hall is survived by his widow, Mrs. Corrine Hall, three daughters and five sons.

ALBERT HABERMASS, M.D.

Dr. Habermaas was born in St. Louis September 29, 1872, and died suddenly on November 20, 1933.

He graduated with highest honors from the St. Louis high schools and after attending Washington University he entered Marion-Sims Medical College from which he graduated in 1896. For several years he served as a member of the faculty of the latter institution

Dr. Albert Habermaas was a man of broad cultural education with a profound medical knowledge He was throughout his life an ardent student, meticulous in his adherence to the code of medical ethics and wholeheartedly devoted to his profession.

As a general practitioner he occupied a unique position in the families of many of his patients where his boundless charity, sunny disposition, understanding sympathy and ready wit endeared him to a large circle of patients and friends.

R. K.—in the Weekly *Bulletin* of the St. Louis Medical Society.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

Barry County Medical Society, May 15, 1934.

BUCHANAN COUNTY MEDICAL SOCIETY

The regular meeting of the Buchanan County Medical Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital June 20 at 8 o'clock.

The secretary announced that the Woman's Auxiliary was giving a picnic the evening of June 27 at Dr. L. C. Bauman's residence and desired as many as possible of the members to attend.

Because of rain very few members were present and Dr. Charles G. Geiger moved, duly seconded and carried, that the scientific address which was to have been delivered by Dr. H. De Lamater be postponed until the next meeting on September 5 at State Hospital No. 2.

Emmett F. Cook, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met in regular quarterly session June 14 at the Methodist Church, Archie, Dr. T. W. Adair, Archie, in the chair.

Preceding the scientific program a sumptuous dinner was served members of the Society and the Auxiliary, their guests and visitors by the ladies of the Methodist Church.

Dr. M. P. Overholser, Harrisonville, read an obituary of Dr. A. R. Elder, Harrisonville, which the Society voted to preserve as a memorial in its records.

Dr. R. M. Miller, Belton, read a well prepared and instructive paper on "Angina Pectoris."

Drs. Vincent Williams and John Callan, Kansas City, discussed "The Pathology of Angina Pectoris and Other Cardiac Lesions," substituting for Dr. L. J. Schofield, Warrensburg, who was to have been a guest and discuss this subject. Dr. Williams demonstrated various vascular lesions of the heart using well selected specimens from postmortem cases with whose antemortem histories he was conversant.

A general discussion of the subject followed.

The hour being late Dr. B. B. Tout, Archie, requested that his "Report of Case" be deferred to some other date for presentation.

Dr. T. W. Adair, Archie, as president of the Society, and Mrs. Adair, as president of the Auxiliary, deserve much credit for making this an outstanding meeting of their respective organizations.

Physicians in attendance were Drs. T. W. Adair and B. B. Tout, Archie; G. W. Griffith, Garden City; B. O. Hartwell, Drexel; R. M. Miller and A. D. Johnston, Belton; M. P. Overholser and J. S. Triplett, Harrisonville; William Beckman, Strasburg; C. W. Luter, Butler; R. H. Smith, Rich Hill; E. E. Robinson, Adrian; O. B. Hall, J. T. Anderson and J. A. Powers, Warrensburg; C. T. Ryland and J. Q. Cope, Lexington; W. A. Braecklein, Higginsville, and Harold D. Hedrick, Vincent T. Williams and John R. Callan, Kansas City.

J. S. Triplett, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met May 1 with twelve members present.

A communication from the American Birth Control League concerning a speaker on birth control in the community was read. It was moved that the matter be tabled; seconded and carried.

Dr. A. B. Clark, Joplin, reported that there are several cases of measles in Joplin.

Dr. O. T. Blanke, Joplin, reported a case of buccal leukoplakia in the right side of a patient's mouth. This was thought to have been produced by the patient's habit of chewing tobacco on that side of his mouth.

Dr. A. B. Clark, Joplin, reported a number of cases of Vincent's infection in the mouths of school children in Joplin. Dr. Blanke suggested that drinking fountains should have a stream that shoots to one side rather than falling back into the fountain.

Dr. Paul W. Walker, Joplin, reported a case of pellagra. This case was discussed by Drs. A. B. Clark, S. H. Miller and Ed. James, Joplin.

Dr. Ed. James, Joplin, reported a case of granulocytic angina. This case was discussed by Drs. L. B. Clinton, Carthage; O. T. Blanke, R. L. Neff and J. R. Kuhn, Joplin.

A motion was made that the Jasper County Medical Society donate $15 from the treasury fund of the Society toward redecorating the Legion Hall in which the Society meets. Motion seconded and carried.

Meeting of May 15

The Society met May 15 with nineteen members present.

Dr. H. J. Rinkel, Kansas City, the guest speaker of the evening, was introduced by Dr. C. T. Reid, Joplin.

Dr. Rinkel spoke on "Diagnostic and Therapeutic Principles of Allergy." The paper was dis-

cussed by Drs. R. C. Lowdermilk, Galena, Kansas; L. W. Baxter, J. W. Barson, and C. T. Reid, Joplin, closed by Dr. Rinkel.

Meeting of May 22

The Society met May 22 with sixteen present.

The annual dinner meeting for members and their wives was discussed. Dr. A. B. Clark, Joplin, moved that the meeting be held, seconded by Dr. S. H. Miller, Joplin, and carried. The committee on arrangements for the dinner was instructed by the chair to select a place. The entertainment committee was instructed to provide a program and the secretary was instructed to inform the members of the Society of the arrangements made by the committees.

Dr. A. B. Clark, Joplin, presented a paper on "Steatomata." A patient was presented with a large number of such growths on the scalp. The paper was discussed by Drs. L. C. Chenoweth, A. M. Gregg, S. H. Miller, D. R. Hill, R. M. James, M. O. Coombs and E. D. James, Joplin, and L. B. Clinton, Carthage.

Dr. Clark discussed the epidemic of an acute exanthematous disease which is becoming a problem in Joplin. He stated that it is either German measles or Duke's disease and gave the differential diagnosis of the two diseases. Dr. E. E. Moody discussed Duke's disease more fully and stated that in his opinion most of the cases he had seen were Duke's disease.

Meeting of May 29

The members of the Jasper County Medical Society entertained their wives with a dinner at Sagmount Inn, May 29. About thirty physicians and their wives were present.

Following the dinner a program of dance numbers by pupils of a Joplin school of dance was given.

This dinner terminated the meetings of the Society for the season.

Paul W. Walker, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at Thayer, June 28, with the following present: Dr. H. L. Reed and wife, Licking; Dr. J. F. Gullic, Koshkonong; Dr. W. T. Eudy and wife, Eminence; Dr. A. H. Thornburgh and Dr. Max Thornburgh, West Plains; Dr. Jesse E. Douglass, Webb City, and Dr. F. A. Barnes, Thayer.

Dr. J. C. B. Davis, Willow Springs, the president, having been called to Denver by the illness of his wife who is there on a visit, could not be present.

Dr. A. C. Ames, Mountain Grove, the secretary, was delayed by tire trouble and did not reach Thayer until after the meeting was over.

Dr. H. E. Curry, Jefferson City, state veterinarian, who was to have been on the program, was called to Washington, D. C., on official business.

Dr. Jesse E. Douglass, Webb City, spoke before a large and appreciative audience at the Royal Theater following the dinner. He spoke on "The Prevention of Tuberculosis" and showed a motion picture on "The Story of My Life by Tee Bee."

After the dismissal of the lay audience Dr. Douglass occupied the rest of the time in a discussion of the "Diagnosis of Tuberculosis" and the showing of slides. It was a worth while and instructive lecture.

It was the general opinion of those present that in the number present the meeting was a failure but in instruction received by those present it was one of the best meetings held by the Society in a long time. All expressed regret that more could not have been present to profit by it.

A. C. Ames, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Advisor, Dr. J. F. Harrison, Mexico.

The St. Joseph Convention

A good convention does not just happen. It closes a year's work and involves special duties for the state president and her officers and chairmen. The duties and responsibilities attaching to the convention general executive committee of the hostess auxiliary are outlined in the "Auxiliary Handbook," and Mrs. Charles H. Werner, St. Joseph, general chairman, says these pages "became the subject of thorough study and frequent reference" culminating in the admirable tenth Annual Session. The April Quarterly *Bulletin* carried the detailed program and list of Committees.

In making her report as convention chairman, Mrs. Werner said in part: "The generosity of the Buchanan County Medical Society in giving us a check for $100 toward our convention expenses enabled us to give the complimentary luncheon at the Country Club on Wednesday. . . . Dr. E. J. Goodwin, Secretary of the State Medical Association, gave us the services of one clerk from those assigned to him by the local Chamber of Commerce, a courtesy much appreciated. . . . The badges were furnished by the State Medical Association."

The final registration totals showed there were representatives from nineteen auxiliaries. These included thirty-three state board members, eighteen delegates, five alternates, sixty-two other members and twenty-three guests, making a total of 141. There were 125 guests at the tea given Monday afternoon, May 7, by Mrs. A. B. McGlothlan in honor of the national president. Mrs. James Blake, Hopkins, Minnesota; our state president, Mrs. Hudson Talbott, St. Louis; state president-elect, Mrs. Wm. H. Goodson, Liberty, and past state and national officers.

At the board luncheon Tuesday guest speakers were Mrs. James Blake who spoke on the coming National Convention in Cleveland, and Dr. Harriett Cory, St. Louis, who spoke on "Our State Health Program." Following this luncheon all

visitors had the pleasure of a trip either to the beautiful private gardens, opened for their enjoyment, or to the Opportunity School, Art League Room, Children's Museum and Blind Crafts School. All met at 5 p. m. for a most enjoyable tea at State Hospital No. 2.

At the Wednesday Country Club luncheon the Auxiliary was honored and pleased to have as guest speakers Drs. W. L. Allee, Eldon; C. T. Ryland, Lexington; J. F. Harrison, Mexico; Hudson Talbott, St. Louis, and W. H. Goodson, Liberty, from the State Medical Association, who brought words of appreciation and encouragement. The dinner on Wednesday evening at Hotel Robidoux, closing the Auxiliary convention afforded a large group the opportunity to hear the wholesome address by Father Alphonse Schwitalla, St. Louis, Dean, St. Louis University School of Medicine, on "The Physician in Our Changing Times."

The music provided at these various social functions afforded that additional joy which beautiful music perfectly rendered always contributes to such occasions.

The business sessions of the convention, the board meeting Tuesday morning, the general meeting Wednesday morning and the post-convention board meeting Wednesday afternoon, were gratifying in the reports of achievements of the year past and in the plans for the future. The June JOURNAL carried excerpts from the report of the president, Mrs. Hudson Talbott, St. Louis.

The chairman of public relations, Mrs. Floyd Spencer, St. Joseph, accompanied her report with notes of appreciation and commendation received from Dr. W. L. Allee, State President; Dr. E. J. Goodwin, Secretary, and Dr. Ellis Fischel, Chairman, Committee on Cancer, of the State Medical Association, concerning the services of the Auxiliary through its public relations activities. This commendation from the State Medical Association was most heartening and inspiring to the convention and will prove so to all auxiliary women throughout the state. It was also a personal tribute to Mrs. Spencer for her fine accomplishments as chairman of this important committee.

The exhibit room of the convention was popular and interesting, containing year books of nine auxiliaries; National Auxiliary study envelopes and other items from the program department; *Hygeia* exhibits; essays from the nine hundred entrants in the state essay contest; the "Regional Scrapbook" of 1932-33, this year's "State and County Scrapbooks"; copies of the A. M. A. *Bulletin,* and the National Auxiliary News Letters. There were for sale copies of the "Handbook," the last "State Year Book," and "The First Twelve Years."

The St. Joseph Convention closed a happy, harmonious, forward moving year under the administration of Mrs. Hudson Talbott, St. Louis. The Auxiliary goes into 1934-1935 with Mrs. William H. Goodson, Liberty, feeling sure of corresponding success and usefulness.

The following meetings will be held in September: The Missouri Public Health Association and the Missouri Tuberculosis Association on September 20 and 21; the Woman's Auxiliary and the Social Hygiene luncheon meeting with Dr. Harriet S. Cory, St. Louis, presiding, September 21; the Missouri Child Health Council with Dr. H. S. Gove, Lynn, presiding, the evening of September 21.

MISCELLANY

BOARD OF HEALTH'S INTERPRETATION OF "UNPROFESSIONAL AND DISHONORABLE CONDUCT" UPHELD

IN THE SUPREME COURT OF MISSOURI DIVISION NUMBER ONE

September Term, 1933

STATE OF MISSOURI ex rel.,
ROBERT LENTINE, *Appellant,*
vs.
STATE BOARD OF HEALTH, et al.,
Respondents.
No. 31,168

In 1929 the relator, Robert Lentine, was licensed by the state board of health, under the medical act of this state (article 1, chapter 53, R. S. 1929), to practice medicine and surgery. On June 11, 1930, after due notice and hearing upon charges made the state board of health revoked the license. Lentine thereupon petitioned the circuit court of the city of St. Louis for a review of "the proceedings of said board revoking his license and the evidence therein" (Section 9120, R. S. 1929) and the writ of certiorari provided for by said section 9120, supra, was issued by that court. The proceedings of the board of health were sustained by the circuit court and this appeal followed.

Upon the oral argument in this court some question was suggested as to our jurisdiction of this appeal. The respondents are the members of and constitute the state board of health and it has heretofore been held that their "jurisdiction as members of the state board of health is co-extensive with the boundaries of the state and hence they are classed as state officers" within the meaning of that clause of Section 12, Article 6, of our constitution giving this court jurisdiction "in cases where * * * any state officer is a party." State ex rel. Conway v. Hiller, et al. (State Board of Health), 266 Mo. 242, 180 S. W. 538. In a similar case wherein the circuit court quashed the proceedings of the state board of health we said upon appeal:

> "Respondent insists that no appeal lies to the Supreme Court from said judgment of the circuit court of the city of St. Louis. While we have held that the state board of health is not a court or judicial body (State ex rel. v. Goodier, 195 Mo. 551, 93 S. W. 928) yet, when relator availed himself of the right of review given by section 7336, R. S. 1919, and filed his petition in the circuit court of the city of St. Louis for a writ of certiorari against the members of the state board of health, that proceeding was a 'case' within the meaning of section 12, art. 6, of the Constitution, and, as respondents are state officers within the meaning of said section, an appeal from the decision of the trial court in the certiorari proceeding properly goes to the Supreme Court." State ex rel. Horton v. Clark, et al., 320 Mo. 1190, 9 S. W. (2d) 635.

The statutory writ of certiorari provided for by section 9120, supra, and whereby a right of review by the circuit court of the proceedings of the state board of health is granted, is much broader in its scope and effect than the common law writ of certiorari. (See State ex rel. Horton v. Clark, et al., supra.) Said

section of the Statute provides that, "Any person whose license has been or shall be revoked by the board shall have the right to have the proceedings of said board revoking his license and all the evidence therein reviewed, on a writ of certiorari, by the circuit court of the county in which said board held its session when said license was revoked. Said writ * * * shall command the said board and the secretary thereof to certify to said court the record and proceedings of said board, and a complete transcript thereof, and of all the evidence therein pertaining to the revocation of said license." The statute then requires that the "petition for the writ of certiorari shall set forth the rights of the petitioner and the injuries complained of by him." We shall therefore confine our review to the matters of which relator complains by his petition to the circuit court and which were necessarily passed upon by that court in arriving at its judgment sustaining the proceedings of the board of health. Omitting wholly formal and preliminary allegations the petition follows:

"Relator states that on or about the 11th day of June, 1930, he was duly qualified, registered and licensed physician under the laws of Missouri.

"Relator further states that on or about the —— day of May, 1930, the State Board of Health of Missouri caused to be issued and served upon relator notice of a purported complaint, which notice is in words and figures as follows (caption, signature, etc., omitted)

"You are hereby notified that there is a complaint against you charging you with the violation of Section 7336 of the Revised Statutes of Missouri, 1919, in that you being a regular licensed practicing physician in the City of St. Louis, Missouri, have been guilty of unprofessional and dishonorable conduct and that you are of bad moral character in this namely, that you on or about the 3rd day of March, 1930, violated the Criminal Statute of the State of Illinois, relating to the unlawful sale of diplomas for the practice of medicine; and that you on or about said date entered a plea of guilty to said charge in the criminal court of Cook County, Illinois. On account of such complaint the State Board of Health will consider whether or not your license as a practicing physician in Missouri ought to be revoked.

"Wherefor, you are hereby notified to appear before the State Board of Health at the Jefferson Hotel in St. Louis, Missouri, on the 11th day of June, 1930, at nine o'clock a. m. to answer said complaint. * * *

"Relator further states that pursuant to said notice he, together with counsel, appeared at the time and place designated therein, and after hearing all the evidence and arguments of counsel representing both parties, The State Board of Health of Missouri revoked permanently the license of relator to practice medicine and surgery in Missouri.

"Relator further states that said purported ground of revocation, to-wit: 'Unprofessional and dishonorable conduct,' does not state facts sufficient to constitute a cause of action against relator, for the reason that the statute (Sec. 9120, R. S. Mo. 1929) defines 'unprofessional and dishonorable conduct' in the following language: 'Habitual drunkenness, drug habit, or excessive use of narcotics, or producing criminal abortion, or soliciting patronage by agents, shall be deemed unprofessional and dishonorable conduct within the meaning of this section'; that said alleged complaint has nowhere charged relator with any one of said offenses constituting 'unprofessional and dishonorable conduct.'

"Relator further states that said purported complaint attempts to charge him with the alleged offense of being 'of bad moral character'; that this alleged offense is not defined by the statute; that said Section 9120 R. S. Mo. 1929, authorizing the revocation of medical licenses for certain causes therein set out, is highly penal in its character, and should be strictly construed; that the meaning of the words, 'bad moral character' are so vague, ambiguous, indefinite and uncertain as to render the purported charge of 'bad moral character' unenforceable; that the words do not inform one clearly enough to enable one to know whether one is violating their meaning or not; that what conduct in the mind of the personnel of one Board of Health might constitute 'bad moral character' might not be so considered by the personnel of another Board of Health, or, what conduct one court might consider 'bad moral character' might not be so considered by another; that the personnel of each Board of Health and each court can, through the use of these words, make their own penal statute for the revocation of a medical license, instead of the Legislature, to whom that power alone belongs.

"Relator further states that he has not consciously been guilty of such conduct as to render him a man of 'bad moral character,' and has been guilty of no acts or conduct as a licensed physician authorizing respondents to revoke his license to practice medicine and surgery in Missouri."

The prayer was that a writ of certiorari issue in conformity with the provisions of the statute set out, supra. Pursuant to the command of the writ, which was thereupon duly issued and served, a complete transcript of the record and proceedings of the board of health in such matter including what purports to be "all the evidence therein" was certified to the circuit court. At the hearing in that court respondent's motion to quash the writ was sustained.

The same complaints set forth in relator's petition are urged here upon this appeal. Consideration thereof necessitates a summary of the evidence and reference to the pertinent parts of the statute involved. The charges made and which were held, by the board and the circuit court upon review, to be sufficient are set out in relator's petition, supra. The pertinent part of the statute (Section 9120, R. S. 1929) reads:

"The board may refuse to license individuals of bad moral character, or persons guilty of unprofessional or dishonorable conduct, and they may revoke licenses, or other rights to practice, however derived, for like causes, and in cases where the license has been granted upon false and fraudulent statements, after giving the accused an opportunity to be heard in his defense before the board as hereinafter provided. Habitual drunkenness, drug habit or excessive use of narcotics, or producing criminal abortion, or soliciting patronage by agents, shall be deemed unprofessional and dishonorable conduct within the meaning of this section."

The evidence is not, apparently, set out in full in the record here but no question is made that it is not sufficiently stated to advise us of the facts and circumstances which the board of health deemed to constitute sufficient cause, under the statute, for the revocation of relator's license. The writer, however, finds difficulty in stating the circumstances, various moves, acts and motives of the parties engaged in the conspiracy shown to procure by means of chicanery, corruption and

bribery the issuance of licenses to practice medicine and surgery in the State of Illinois to some six or seven men in the state of Connecticut who could not qualify or meet the requirements for the practice of medicine under the laws of that state, so that the implications and conclusions which so readily arise upon reading the testimony, and especially that of relator himself, may be fully developed. From the testimony of the relator, Lentine, it conclusively appears that he played a major part in the conspiracy. Lentine and certain others involved were indicted for such conspiracy and convicted in the criminal court of Cook County, Illinois, and Lentine was sentenced to imprisonment in the county jail for a term of two months which he served. The indictment was brought after Lentine had been granted a license in Missouri and in licensing him here our board of health apparently had no knowledge or information whatsoever of his prior participation in, or conduct in reference to, the corrupt and fraudulent schemes to circumvent and evade the law of the state of Illinois regulating and governing the practice of medicine and surgery in that state. From Lentine's testimony at the hearing by the board of health as well as an excerpt from his testimony in the criminal court of Cook County, Illinois, which he offered in evidence and which was made a part of the record in this case, we compile the following statement of his history and career and of the events which culminated in his indictment and conviction as aforesaid. It appears not unlikely that he has stated these matters in the most favorable light possible to himself. Lentine states that he was born and reared in Brooklyn, New York; graduated from Manual Training School in that city; "took premedical training at Long Island College Hospital; had a year and a half of medicine at the New York Homeopathic Medical School and in the sophomore year five of us boys felt we were going to flunk and we came to the St. Louis College of Physicians and Surgeons, spent two years there and graduated" from that school in 1922. Without further comment we observe here that in reading the testimony his purpose and motive in leaving the medical schools of his home state of New York and entering the St. Louis school is apparent. In 1923 he took the examination in this state for a license to practice medicine and surgery in Missouri but the board reported he had failed to pass and refused to issue a license. From 1923 to 1925 he was employed in St. Patrick's Dispensary in St. Louis. In 1925 he returned to the state of New York and remained there until some time in 1928 during which period he practiced medicine as "an assistant to Dr. Louis Levin" in Brooklyn. He had not yet obtained a license to practice medicine in any state but was desirous of, and intent upon, doing so. Whether the kind of work in which he engaged in New York from 1925 to 1928 was legitimate and legalized under the medical act of that state does not appear, however he was not licensed to practice medicine in that state. He had investigated or weighed the possibilities of taking the examination in Illinois. The board of that state seems to have been invested with discretion as to the admission of graduates of a certain class of medical schools to examination in that state and to have looked with disfavor upon this St. Louis College of Physicians and Surgeons from which Lentine had graduated. As Lentine at one time puts it: "I wanted to get admitted to the Illinois examination and couldn't on account of my graduation from P. & S. without the discretion of the Illinois Board." In May, 1928, a friend told him a Dr. Kalmus of New York City had contracts with the Illinois state board whereby it could be arranged for him (Lentine) to be admitted to the examination in that state. Lentine says he approached Kalmus who claimed that for two thousand dollars he could arrange the matter satisfactorily but Lentine informed him that "it was impossible for me to get" that amount of money. Later about July or August, 1928, Lentine again called upon Kalmus at the request of Kalmus. On that occasion, so Lentine relates, Kalmus asked him if he was acquainted with one Barron a former Brooklyn man who then resided in Chicago and who had attended the St. Louis medical school with Lentine. Lentine told Kalmus that he was acquainted with Barron and Kalmus then said, "Barron is the key man of Illinois" and related that he, Kalmus, for a consideration in money paid Barron had theretofore obtained, through Barron, licenses for several men who wanted to practice medicine in Illinois but who apparently could not meet the requirements of the Illinois law. However in a later case it seems Barron not only increased the price demanded of Kalmus but "pocketed" the money finally paid over and failed to deliver. Kalmus told Lentine that he (Kalmus) then had five or six "candidates," Connecticut men, who wanted Illinois licenses, and proposed that Lentine get in touch with Barron and pretend that he (Lentine) was handling the deal so that Barron would not know that Kalmus was involved. Lentine says he consented to undertake the enterprise on condition that Barron would agree to compensate him by obtaining permission for him to take the Illinois examination. As the writer understands Lentine's testimony, he claims Kalmus agreed and promised to pay all of his expenses in putting over the deal and until he was admitted to examination in Illinois. Pursuant to Kalmus' directions Lentine in New York, called Barron, in Chicago, by telephone, identified himself and stated the proposition, representing that he (Lentine) was acting for the six Connecticut men and told Barron they could pay six hundred dollars each. Barron replied: "All right, come on down with the six hundred for each." Whereupon Kalmus and Lentine went to Springfield, Illinois, registering at different hotels, Kalmus paying the expenses, and Lentine got in touch with Barron who made trips to Springfield, to see Lentine and carry on negotiations. After about two weeks Barron "boosted the price * * * said, 'we can't do it for six hundred.'" Lentine then was authorized by Kalmus, who remained all the time behind the scenes, to increase the offer to "eight or eight hundred and fifty dollars for each." The writer cannot definitely determine the amount finally agreed upon, that however, is immaterial. When an agreement was reached between Barron and Lentine, Barron demanded that one half be paid in advance. Lentine obtained the one half from Kalmus and paid it over to Barron. But the days passed and Barron failed to produce the six (or Lentine says at one place there may have been seven) licenses for the men back in Connecticut. Kalmus left the money with Lentine to pay the unpaid half of the graft money when and if Barron delivered the licenses and departed for New York. Some two weeks later Barron did deliver six or seven purported licenses to Lentine, received the balance of the agreed amount and promised to see that Lentine was admitted to examination in Illinois at the next regular time for same, the following November. Lentine then took the purported licenses to Kalmus in New York and presumably the six or seven Connecticut men entered upon the practice of medicine in the state of Illinois. Lentine says pursuant to the understanding with Barron he returned to Chicago in November at the time fixed for the medical examination but Barron advised: "You had better wait until next month when the Chicago Medical boys take the examination; it

will be easier for you because they are all 'C' college men." Lentine's testimony as to this continues: "So I went back a month after but the morning of the examination, about ten o'clock, Barron comes up with a car to take me to the Board. I says, 'how can I take the Board at ten o'clock when the examination starts at nine o'clock?'" Lentine did not take the examination in Illinois and so far as appears never so much as made application to the proper authorities to be admitted to examination. He states that after the December episode he became "disgusted" and left Chicago and went to St. Louis and "that was the last I heard of the whole thing until they arrested me here" (St. Louis) in 1929, about a year later. Lentine denies that he retained any "cut" or part of the money which he handled in the transaction but the brief filed by the Attorney-General refers to certain statements found in Lentine's testimony in the criminal court as well as other statements appearing in other parts of his testimony and points out that the conclusion follows therefrom that Lentine received from $150 to $250 on each of the six or seven licenses he undertook to purchase and the construction so placed upon his testimony seems warranted. Further Lentine states that Kalmus paid all his expenses and in reciting his misadventures in November and December in reference to failure to obtain admission to the Illinois examination says "meanwhile I was getting my expenses from Kalmus" and admits that he "padded the expense account." The implication from certain of the questions and answers in Lentine's testimony in the criminal court is that the licenses delivered to Lentine by Barron were counterfeit in that the signatures and seals thereon were forgeries and if that inference is not correct certainly the licenses were not legally issued and were wholly invalid and the pseudo doctors from Connecticut ere long found themselves without any badge or pretense of authority to treat the sick in the state of Illinois despite the fact they had each paid to Kalmus, as indicated by the evidence, as much as twenty-five hundred dollars to obtain the Illinois license. Though these Connecticut men did not come to Illinois, take any examination there, comply in any respect or in any manner with the laws of that state governing the right to practice medicine in Illinois, as Lentine well knew, and though he tacitly admits that it was contemplated and supposed that Barron would and could procure the issuance of the licenses by and through bribery of officials of the state of Illinois yet Lentine presumes upon the intelligence of our state board of health and the courts by taking a position which is, in effect, that he was not aware of doing anything improper, wrongful or immoral in lending himself to the scheme which he says Kalmus instigated and proposed and Barron consummated. He endeavors to pose as a mere pawn in the hands of these two men and the innocent victim of their villainies. He claims he thought the licenses were "genuine," valid licenses duly issued under the laws of the state of Illinois. He says, "Barron told me they (the licenses) came right from the State House and it had cost ten thousand dollars to get introduced to those people to get the different things done." Apparently the only wrong he conceives of is that he took money from the Connecticut men and paid it out for a scrap of paper which was ineffectual to make them doctors in Illinois when the agreement was that for a price each of them would be constituted a full fledged physician and surgeon in that state. Lentine's sense of wrong is aroused only in that the corrupt and fraudulent scheme was discovered and his clients deprived of the fruits of the bargain, the purported sale and purchase of a license to practice medicine in the state of Illinois. His course of conduct indicates a spirit of contempt for the laws enacted for the protection of the health and life of the people and the maintenance of proper standards and requirements of learning, skill and moral integrity in an honored and trusted profession into whose keeping such important interests are committed and reveals his concept of professional ethics, conduct and honor. We think relator's conduct in respect to and attitude toward the medical profession would in "common judgment" be deemed and condemned as dishonorable and unprofessional. State ex rel. Hathaway v. State Board of Health, 103 Mo. 22, 15 S. W. 322.

Reverting to relator's petition herein setting forth "the injuries complained of by him" we find two principal propositions presented, viz: (1) that neither the charge of "unprofessional and dishonorable conduct" as made nor the evidence adduced is sufficient to constitute cause for revocation of his license within the meaning of the statute, supra, and (2) that the charge of "bad moral character" is too "vague, ambiguous, indefinite and uncertain" to be "enforceable" and that whatever construction be placed on such term yet relator "has not consciously been guilty of such conduct as to render him a man of 'bad moral character.'" The argument to sustain the first of these propositions is that it is neither charged nor shown that relator was guilty of or had committed any of the acts enumerated in the statute, supra, any one of which the statute declares shall be deemed "unprofessional and dishonorable conduct"; the acts or conduct so enumerated being, "Habitual drunkenness, drug habit or excessive use of narcotics, producing a criminal abortion, or soliciting patronage by agents." If the statute be given the construction for which relator contends, it must be held that it was intended that only the enumerated acts should constitute unprofessional and dishonorable conduct for which the state board of health may either refuse to license applicants or revoke licenses or rights to practice medicine theretofore granted. Relator cites the case of State ex rel. Spriggs v. Robinson et al., comprising the State Board of Health, 253 Mo. 271, 161 S. W. 1169. An attempt was made in that case to show that the physician had offered to commit a criminal abortion not however that he had actually done so or attempted to do so. The decision is predicated upon the theory that the statute is leveled at acts and the mere willingness or consent to do a wrongful act or the contemplation thereof "where no wrong is actually done" does not come within the statute. But the case is not cited as being analagous on facts but rather for the discussion and construction of the statute found therein. The statute at that time read:

> "The board may refuse to license individuals of bad moral character, or persons guilty of unprofessional or disonorable conduct, and they may revoke licenses, or other rights to practice, however derived, for like causes, and in cases where the license has been granted upon false and fraudulent statements, after giving the accused an opportunity to be heard in his defense before the board as hereinafter provided. Habitual drunkenness, drug habit or excessive use of narcotics, or producing criminal abortion, or soliciting patronage by agents, shall be deemed unprofessional and dishonorable conduct within the meaning of this section, *but these specifications are not intended to exclude all other acts for which licenses may be revoked.*"

It would likely be commonly considered in the light of the ordinary construction and meaning of the language used in the concluding clause of the statute,

supra, which we have italicized, that the legislature thereby intended to specifically state that acts or conduct constituting unprofessional and dishonorable conduct were not to be restricted to those enumerated and that by specifying certain acts it was not intended that other acts or conduct which in fact and by common judgment were of such a character as to constitute unprofessional and dishonorable conduct were to be excluded from the operation of the statute. However this court making a strict application of the ejusdem generis rule held that since the statute specifically designated several "matters or things" which should "be governed by its provisions," that the general language which followed (italicized above) must be held to apply and be limited to only acts and conduct of the same general nature as those specified. If the construction thus given the statute correctly reflected the legislative intent we do not perceive the purpose served by the amendment of 1919 (Laws, 1919, page 499), striking out of the statute the words: "but these specifications are not intended to exclude all other acts for which licenses may be revoked" and leaving the statute otherwise unchanged. Since the amendment of 1919 that part of this section of the statute involved has remained as it was left by the amendment and reads as we have first quoted it, supra. We think it a justifiable assumption that the legislature having sought, as seems apparent, by definite language to declare that unprofessional and dishonorable conduct within the purview of the statute should not be restricted and limited only to the acts enumerated or acts of the same nature and falling within one of the acts enumerated was moved to strike out this clause by reason of the holding of this court, supra, construing the language thereof to so limit the term "unprofessional and dishonorable conduct," intending thereby to do away with the restriction thus imposed. After the decision in State ex rel. Spriggs v. Robinson and prior to the amendment of 1919, this court decided the case of State ex rel. Conway v. Hiller, et al., constituting the State Board of Health, 266 Mo. 242, 180 S. W. 538. Conway a physician in Boone county was cited before the State Board of Health on a charge of unprofessional and dishonorable conduct. The proceedings were brought under the identical statute construed in the Spriggs case but we find no reference to the Spriggs case nor application of the holding therein to the charge and facts in the Conway case. The opinion in the Conway case sets out the facts shown; that Boone county had adopted a local option law and thereafter Conway, a licensed physician engaged, on a rather extensive scale, in the business of writing prescriptions for whiskey to be used as a beverage charging fees therefor and within a period of six weeks issued 778 such prescriptions. By reference to the statute it will be seen that such conduct does not fall within any of the acts there designated nor is it of the same nature as any of such acts nevertheless having stated the facts this court disposed of the case and sustained the action of the board of health in revoking Conway's license in this very concise manner: "It needs no citation of authorities to demonstrate that appellant's conduct aforesaid, as disclosed by the undisputed facts in the record was both unprofessional and dishonorable." In so doing the court, without weighing and analyzing the statute by the technical rules of statutory construction, seems to have been satisfied with the view that professional conduct on the part of a licensed physician of such a nature as by common judgment is deemed both unprofessional and dishonorable, though not named therein, comes within the purview of the statute and is cause for revocation of his license. It is well settled that the power given to certain boards or officers to grant a license to practice medicine and surgery within the state as well as to revoke such license for good cause upon charges preferred and a hearing thereon, is an exercise of the police power. "The interest of the state in the practice and character of physicians does not by any means cease with the granting of licenses. Clearly the state has the power to revoke the licenses for good cause. * * * grossly immoral conduct connected with the practice may be cause for revocation. * * * A provision would seem valid if to the effect that a license may be revoked because of grossly unprofessional conduct or conduct grossly unprofessional and dishonorable, for a fair interpretation of these terms is that they mean conduct which is by general opinion considered to be grossly unprofessional because immoral or disreputable. Unprofessional conduct as used in statutes does not mean merely unethical conduct as judged by the peculiar standards of the profession but is generally held to mean dishonorable conduct. The mere fact that conduct is unprofessional is not enough to justify revocation but it must have an additional quality" as for example be also dishonorable or disreputable. 21 R. C. L. p. 363. At the citation given and in the R. C. L. supplements authorities will be found fully supporting the quoted text and in the examination of the cases the weight of authority is to the effect that statutes providing that the license of a physician may be revoked by the board or officers is not rendered uncertain or otherwise invalid because the grounds for revocation are therein stated in general terms (see annotation 5 A. L. R. p. 94). In the People ex rel. State Board of Health v. Apfelbaum, 251 Ill. 18, 95 N. E. 995, one claim made by the physician whose license had been revoked was that the medical act under authority of which the board acted was void for uncertainty. As to that contention the Supreme Court of Illinois said: "Section 6 is not void for uncertainty. It authorizes the refusal of the license for certain specific reasons and also generally for unprofessional and dishonorable conduct, and provides that the license may be revoked for the same reasons. The reasons particularly named are certain enough, but it would scarcely be possible for the statute to catalogue specifically every act of unprofessional or dishonorable conduct which would justify the refusal or revocation of a license."

We are constrained to hold that the use of the general terms "bad moral character" and "unprofessional and dishonorable conduct" in specifying the grounds for revocation of a physician's license does not render our statute so uncertain, vague or ambiguous as to be unenforceable. Certainty is required in this that in preferring a charge the licentiate is entitled to be advised and informed of the specific acts or course of conduct on his part alleged to be unprofessional and dishonorable or made the basis of a charge of bad moral character. After due notice the question whether the acts, or conduct, charged are such as to constitute unprofessional and dishonorable conduct or render the licentiate a person of bad moral character within the purview of the statute "calls for the exercise of judgment and sound discretion" on the part of the board of health. The board must hear and weigh the evidence and "pronounce a conclusion" (State ex rel. Hathaway v. State Board of Health, 103 Mo. 22, 15 S. W. 322) and if the board order the license revoked the physician may then have the finding and order of the board fully reviewed by the courts. (Section 9120, R. S. 1929.)

But relator argues that by enumerating certain acts and saying they shall be deemed unprofessional and dishonorable conduct the legislature thereby intended

to define the term unprofessional and dishonorable conduct and to limit and restrict the operation of the statute to those acts alone excluding any and all other acts affecting the practice of medicine however reprehensible, immoral or unlawful such acts may be. In the state of Rhode Island the medical act provides for revocation of a license for "gross unprofessional conduct." A licensed physician of that state made a business of issuing prescriptions for morphine and cocaine to drug addicts and in some instances to known vendors of such drugs. Upon such facts and under the statute his license was revoked. Knoop v. State Board of Health (R. I.), 103 Atl. 904. Given the construction for which relator contends since such conduct does not come within any of the acts enumerated in our statute a physician licensed in this state could follow such a reprehensible and immoral practice with impunity so far as his right to practice medicine is concerned and without being subjected to deprivation of his license. We have heretofore touched upon this contention and indicated that we do not think the statute should be given such a narrow or restricted construction. It is argued that the statute is penal and should be strictly construed citing the Spriggs case, supra, and State ex rel. Johnson v. State Board of Health, 288 Mo. 659, 232 S. W. 1031. We said in State ex rel. Horton v. Clark, et al., 320 Mo. 1190, 9 S. W. (2d) 635:

> "We have held this statute penal and ruled that the acts for the commission of which the valuable privilege or right to practice medicine and surgery may be taken away must come within both the letter and the spirit of the law. State ex rel. Spriggs v. Robinson, 253 Mo. 271, 10c. cit. 285, 161 S. W. 1169. Nevertheless it is a wholesome and well-recognized rule of law that powers conferred upon boards of health to enable them effectually to perform their important functions in safeguarding the public health should receive a liberal construction. 29 C. J. p. 30, p. 248, also section 6, p. 243."

It may be considered trite to again observe that the primary and fundamental purpose in statutory construction is to ascertain and give effect to the legislative intent nevertheless such is always the end sought and the numerous rules for the interpretation or construction of statutes are merely aids in the quest. But such rules should not be so applied as to restrict or confine the operation of a statute within narrower limits or bounds than manifestly intended by the legislature and whether the proper construction of a statute should be strict or liberal it certainly should be such as to effectuate the obvious purpose of its enactment and the evident legislative intent. Reference should be had to the policy adopted by the legislature in reference to the subject matter, the object of the statute and the mischief it strikes at or seeks to prevent as well as the remedy provided. Looking to the policy and object of our medical practice act as a whole we find it to be an exercise of the inherent police power of the state in the protection of its people attempting to secure to the people the services of competent practitioners learned and skilled in the science of medicine, of good moral character and honorable and reputable in professional conduct. The license granted places the seal of the state's approval upon the licentiate and certifies to the public that he possesses these requisites. This particular section of the medical act seeks to prevent an immoral or dishonorable person from procuring a license to practice medicine in this state or if a licensed physician is found to be of bad moral character or guilty of unprofessional and dishonorable conduct this section of the statute authorizes and empowers the board of health, the proceeding before the board with the right of review by the courts being prescribed, to revoke the license. The section in question first provides that the board "may *refuse* to license" persons "of bad moral character or persons guilty of unprofessional or dishonorable conduct" and second "may *revoke* licenses, or other rights to practice, however derived, for like causes." The grounds for refusal of a license and for revoking a license are identical. We find the following quotation from the text in 21 R. C. L. p. 362 stated in varied language but in substance the same in numerous cases: "there is no possible distinction between refusing to grant a license and revoking one already granted. * * * the object * * * in each case is identical, viz: to exclude an incompetent or unworthy person from the practice of medicine." Thus in the first lines of the section we find its object and paramount purpose and the thing it seeks to prevent as well as the method or means of prevention declared. It will be noted that the subsequent provisions do not in so many words undertake to define unprofessional and dishonorable conduct, i. e., it is not said that such terms as therefore used are defined to mean the acts and conduct then named nor that only those matters and things so named shall constitute unprofessional and dishonorable conduct. In particularizing that habitual drunkenness, drug habit or excessive use of narcotics, criminal abortion, and soliciting patronage by agents shall be deemed unprofessional and dishonarble conduct we do not, in view of the broad intendments found in the preceding general language, think that the legislature intended to thereby exclude all other acts or conduct affecting the practice of medicine and the moral conduct of the physician, in that connection, which by common opinion and fair judgment are found to be in their very nature unprofessional and dishonorable, as grounds or cause for revocation of a license. Rather upon a showing of any of the things enumerated the board of health, and the court upon review, is not called upon in its sound discretion to determine whether such conduct is such as in common judgment is deemed unprofessional and dishonorable for the statute has expressly declared it so to be. It would not be practicable to the carrying out of the wholesome purpose of the statute to undertake to catalog, list or specify each and every act or course of conduct which would, or under what circumstances, constitute bad moral character or unprofessional and dishonorable conduct and we do not think the legislature intended to do so. The amendment of 1919, as we have observed, might logically be taken to indicate a purpose to be rid of the seeming restriction and limitation which the court had placed upon the statute in its construction of the language stricken out and to permit the statute to operate as to acts other than those named which in their nature are, and by common opinion deemed, unprofessional and dishonorable. So far as State ex rel. Spriggs v. Robinson, supra, is not in accord with what is said herein it should no longer be followed.

With the view we have as to the general legislative intent we cannot adopt the narrow construction relator would give the statute and it therefore follows that the judgment of the circuit court sustaining the action of the board of health should be and is affirmed.

Charles L. Ferguson, Commissioner.

Sturgis, C., Concur.

Hyde, C., Concur.

Per Curiam: The foregoing opinion by Ferguson, C., is adopted as the opinion of the court.

All of the Judges concur.

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CARCINOMA OF THE PROSTATE

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MADISON, WIS.

While we have advanced in the treatment of malignant tumors in general the results in the treatment of malignancies of the urogenital tract are far from satisfactory. In the field of urology there are few conditions more discouraging to the surgeon to manage than carcinoma of the prostate. We are all aware that one of the greatest factors contributing to control or cure of any malignancy is early recognition of the lesion followed by adequate treatment. Certainly this is true of carcinoma of the prostate, as we know from clinical experience that a carcinoma of the prostate can develop to an advanced stage without producing any symptoms to direct the patient's attention to the part involved.

Caulk and others have called attention to the similarity clinically and to the sequences of pathological changes in the development of a carcinoma of the prostate to carcinoma of the female breast. In many respects clinically they are quite similar; in other respects quite different. They are both essentially diseases of later middle life, both have a marked tendency to early lymphatic involvement and to widespread metastases and both show a predilection to osseous metastasis. In both lesions the prognosis as to duration of life and the end results of treatment still are generally unsatisfactory. Carcinoma of the prostate presents the more dismal outlook.

INCIDENCE

Broadly speaking, carcinoma of the prostate is more common than is generally supposed. The preliminary report of the United States Census Bureau for 1932 gives for the continental United States 1090 deaths per 100,000 population from general causes; 102.2 deaths per 100,000 were due to cancer and other malignant tumors; 4.5 deaths per 100,000 were due to carcinoma of the prostate.

Caulk states that approximately 2 per cent of all genito-urinary cases seen in his private practice were carcinoma of the prostate. Most writers agree that in any large general hospital having an active urological service, approximately 5 per cent of the total admissions to the service will be for carcinoma of the prostate and approximately 20 per cent of all cases of prostatic obstruction will be due to carcinoma. Seventy-five per cent of the cases occur during the prostatic age (50 to 75). The average age at which most cases are seen is quoted by most authorities to be around 65 years. Caulk reports a rapidly fatal case in a patient aged twenty-five. Others have reported cases occurring in younger individuals.

ETIOLOGY AND PATHOLOGY

As in all other types of malignancy, the exact etiology is not known. Chronic irritation and inflammation has been suggested as an etiologic factor in the development of some malignancies and in carcinoma of the prostate chronic prostatitis has been considered a predisposing factor in a number of cases. Caulk states that his experience seems to indicate a definite association between the two lesions and suggests that more attention be paid to the eradication of these inflammatory lesions. Approximately 15 per cent of adenomatous prostates undergo malignant degeneration. Carcinoma may also develop in the capsule and from the remnants of glandular tissue left after prostatectomy for benign hypertrophy in a fair number of cases.

Three cases of this type are of interest. In one case hematuria, dysuria and difficulty

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From the Section of Urology, Jackson Clinic.

beginning within two years of the time of prostatectomy would suggest that the hypertrophy was undergoing malignant degeneration at the time of operation and was overlooked. The original examination noted the prostate to be enlarged grade iii, adenomatous in type, with slight irregularity of the right lobe. Death occurred in approximately three years.

A second case, aged 73 at the time of prostatectomy in 1921, was without bladder symptoms for five years when he noted nocturia once or twice with slight occasional dysuria. These symptoms gradually became worse and for a year prior to his visit in 1931 these symptoms were quite marked. Examination disclosed a typical carcinoma in the prostatic area with residual urine. Death occurred two years later, or twelve years following the prostatectomy.

A third case came on account of sciatica in July, 1931. He had undergone prostatectomy at the clinic seven and one half years previously. There was very slight difficulty in voiding and slight dysuria at times. Examination revealed a typical carcinoma in the prostatic area. Roentgen ray examination revealed extensive osseous metastases. Death occurred in eight months.

It was formerly taught that carcinoma of the prostate always began in the posterior lobe beneath the capsule and that benign hypertrophy usually originated in the glands nearest the urethra. Many investigators have demonstrated that this idea concerning the site or origin of carcinoma is erroneous. Carcinoma may and does originate in any portion of the prostate. This latter conception of its site of origin is important in the early diagnosis of the disease. The old statement that carcinoma of the prostate generally begins as a nodule just beneath the posterior capsule, where it is easily palpable by rectum, is an excellent clinical guide. Failure of the physician to detect a small area of carcinoma in a slightly enlarged prostate is excusable, but failure of the physician to make a digital examination of the prostate during the routine examination of a man over fifty is inexcusable.

METASTASES

Most writers agree that in less than 5 per cent of the cases is the growth confined to the prostate when first seen. Involvement of the seminal vesicles and the periprostatic tissue occurs commonly. Involvement of the regional lymph nodes and the perineural lymphatics probably occurs much more often and earlier than is generally supposed as evidenced by the frequency of pains in the pelvis and about the hips.

Ulceration and invasion of the rectum occurs very late in the disease as well as ulceration of the urethra. Microscopically, many variations in the picture are presented; specifically the lesion is an adenocarcinoma.

OSSEOUS METASTASES

Most investigators find osseous metastases in approximately one fourth of cases subjected to roentgen ray examination. In my own experience, osseous metastases are found in well over 50 per cent of the cases at the time of first examination. It is our practice to examine routinely with the roentgen ray all patients on whom a clinical diagnosis of carcinoma of the prostate is made and it is my opinion that if repeated roentgen ray examinations are made during the time the patient is under observation 70 per cent or more of the patients will ultimately show osseous metastases. In approximately 80 per cent of the cases metastases are found in the bones of the pelvis, lower spine and the upper part of the femurs. For practical purposes, a film made of these areas usually suffices.

Osseous metastases may be of two types, osteoplastic or osteoblastic. Cave in a recent study of metastases confirms the generally accepted opinion that the bones most frequently involved are those nearest the primary growth. He advances the theory that osteoplastic metastases result from lymphatic spread and that osteoblastic metastases are due to vascular dissemination. Osseous metastases must be differentiated from areas of osteitis and in the advanced cases from Paget's disease. These conditions should offer little difficulty to the experienced radiologist, and in the case of Paget's disease a film of the skull and long bones should readily decide the matter.

Metastases to the spinal cord and to the distant organs may occur and to the lungs in a fair number of cases. One case in our series, a man, aged 61, admitted to the clinic in October, 1931, came on account of frequency, dysuria and difficulty of five months' duration. One year previously there had been frequency and dysuria for one month relieved by oral medication. Examination disclosed a typical carcinoma of the prostate with palpable glands in both supraclavicular fossae. A biopsy on one of these glands showed metastatic carcinoma. A suprapubic cystotomy and radium implantation

were done. He returned in January, 1932, complaining of pain in the left arm, hoarseness and a brassy cough. Physical and roentgen ray examinations disclosed metastases to the mediastinal lymph glands and to both lung fields. The course was rapidly downward and death occurred two months later.

The presence or absence of osseous metastases in a given case is of importance in outlining the plan of treatment.

SYMPTOMS AND DIAGNOSIS

While it is true that the majority of patients with carcinoma of the prostate complain of symptoms due to obstruction, Bumpus points out that in a large percentage of his cases the first symptom was pain in the pelvis or about the hips and thighs, and states that "neuralgic and rheumatic pains in men above middle age, even in the absence of urinary symptoms, should suggest the possibility of carcinoma of the prostate." The pain is generally described as dull aching in character and usually worse at night. Pain of the typical sciatic type, radiating from the buttock down the back of the thigh and leg to the foot, usually denotes involvement of the lumbar spine or the lymph nodes at the sacral promontory. Pain is not necessarily present even though osseous and glandular metastases exist.

The symptoms due to obstruction and the resultant renal damage differ in no wise from those due to benign hypertrophy. It has been my impression that obstructive symptoms due to carcinoma are more abrupt in their onset and when acute obstruction occurs as the result of malignant disease the preceding history of obstructive symptoms is of shorter duration than in benign hypertrophy.

Pyuria and microscopic hematuria may be absent or present in about an equal number of cases. Unilateral edema of the leg is frequently seen and should suggest the possibility of carcinoma of the prostate with glandular metastases about the great vessels.

In the diagnosis, most reliance must be placed on the findings afforded by a careful digital examination of the prostate per rectum. Bumpus described two clinical types of the gland as found on digital examination although many intermediate types are found. In one type, the gland is small and gives rise to few local symptoms and is often discovered only because of symptoms due to metastasis. Even in advanced cases the growth is not large and can usually be entirely outlined by the examiner's finger. The enlargement is generally uniform and the characteristic areas of stony hardness are as a rule absent. The lack of resilience imparted to the examining finger is an important point. This type tends to metastasize early and gives rise to widespread metastases. In the other and more common type, the gland may present any degree of enlargement depending on the duration of the disease. The contour of the gland is irregular and areas of the characteristic stony hardness are felt. These areas may coalesce and the entire gland may become stony hard. The growth tends early to infiltrate the periprostatic tissues and the lower poles of the seminal vesicles. Obstructive symptoms are more common with this type.

Ferguson, in his recent study of 501 collected cases (205 autopsy, 296 clinical) was able to distinguish three distinct types of carcinoma. He states: "These may be distinguished by the use of an arbitrary clinical index of malignancy or simply by attaching proper significance to the age of the patient, the duration of symptoms, the residual urine and the extent of the disease."

In the differential diagnosis, carcinoma must be differentiated from (1) chronic prostatitis, (2) tuberculosis and (3) prostatic calculi.

Chronic prostatitis is a very common condition and as a result of the chronic infection subsequent fibrosis and atrophy with a firm nodular gland is apt to give rise to confusion. The induration in this condition, as a rule, is not so marked and, while there may be periprostatic adhesion, it is seldom so firmly fixed as in carcinoma.

Tuberculosis is much more apt to cause error in diagnosis; the induration may be just as marked, but the history of or the finding of other tuberculous lesions, such as in the epididymis, the kidney or the bladder usually renders the diagnosis clear.

A single prostatic calculus may simulate very closely a nodule of carcinoma and the entire prostate may be hard where multiple calculi are present. In the latter instance, crepitus can usually be elicited by the examining finger. Roentgen ray examination easily clarifies the diagnosis.

Aspiration biopsy by means of the introduction of a suitable needle through the perineum with the finger in the rectum as a guide and applying suction with a tightly fitting syringe was first introduced and highly recommended by Ferguson. By this latter method Barringer states that they

were able to obtain specimens in approximately 80 per cent of their cases which was of great help in the diagnosis. I have employed this method in several cases even though the clinical diagnosis was apparent in order to familiarize myself with the microscopic picture of the few cells obtained in the specimen. The results were very gratifying. Any urologist should be able to perform the aspiration and any pathologist who would care to study the character of the few cells thus obtained should be able to render a reliable opinion.

Another means of making a diagnosis is the microscopic examination of pieces of tissue removed from the vesical orifice by means of the punch instrument or the resectoscope. Caulk states that by this method he was able to make a definite microscopic diagnosis in 80 per cent of his cases whether early or late.

TREATMENT

It will be readily apparent that we have three problems to deal with in the treatment of this lesion, (1) control or eradication of the lesion, (2) the relief of symptoms due to obstruction and (3) the relief of symptoms due to obvious metastases.

If demonstrable lymphatic or osseous metastases are present at the time of first examination it would naturally follow that an attempt at total eradication of the local lesion would be more or less futile. Bumpus found that in 485 cases in which no form of treatment was given the average duration of the disease from the first symptoms until death occurred was 31 months, and remarks that any form of effective treatment must lengthen this period. When metastases were present at the time of first examination death occurred within nine months in two thirds of the cases. In the cases where examinations did not disclose evidence of metastases the average duration of life was one year; however, 58 per cent of the patients died within that time.

Of the surgical operations devised for the radical cure of carcinoma of the prostate the radical perineal operation of Young, consisting of the removal of the prostate, vesical neck and seminal vesicles, is a classic. In the hands of Young and his associates incontinence of urine, a troublesome sequela of the earlier operations, has been largely overcome by the newer modifications of the operation.

Young has performed the radical operation forty-two times. He feels that with his radical operation over 50 per cent of the cases can be given a five year cure. The greatest disappointment in connection with this operation is that during a period of twenty-seven years and with the tremendous amount of clinical material seen by him, he has found only forty-two cases suitable for the operation. Smith has employed the radical operation in forty-one cases and notes that relief from urinary symptoms is quite complete and, on the basis of other good results obtained, he recommends the operation as extremely valuable in certain selected cases.

Surgical procedures which have been employed for the palliative treatment, such as conservative perineal or suprapubic prostatectomy with or without the use of radium, have given only partially satisfactory results.

Treatment by Irradiation.—A discussion of the several methods of employing radiation will not be mentioned here. One of the obstacles to treatment by radium has been the difficulty of applying sufficient irradiation to control the disease without producing injury to adjacent viscera. Barringer, by means of the suprapubic implantation of radon seeds supplemented by the transperineal implantation of radon seeds in some cases, has been able to control for five years between 10 to 15 per cent of all cases.

Ferguson, after a very exhaustive study of the effects of irradiation on prostatic cancer, concluded that there were two clinical types suitable for irradiation, viz.: Those suitable for palliative therapy only in which the tumor is in excess of 5 cm. in diameter and in which probable or demonstrable metastases have occurred, and those suitable for radical therapy in which the tumor is less than 5 cm. in diameter and no probable or demonstrable metastases are present.

Palliation he suggests can be secured through external radiation alone. In some cases this form of treatment is supplemented by steel radium bearing needles or gold radon seeds inserted through the perineum. For radical therapy a lethal tissue dose requires the use of both external and interstitial radiation.

A new technic of interstitial radiation is offered by Ferguson. By means of a specially designed instrument and through a suprapubic exposure of the vesical neck, he is able to plant gold radon seeds accurately throughout the entire prostatic area. In the cases in which the method has been employed the accuracy of the placement of the seeds was demonstrated.

For the relief of obstructive symptoms it was the practice in the past to establish a permanent suprapubic drain in many cases. The inconvenience of the tube and the necessary care made the method hightly unpopular although the results were very satisfactory.

With the advent of the prostatic punch operation and the newer methods of prostatic resection most urologists have adopted these measures for the relief of obstruction and consider most cases of obstruction due to carcinoma of the prostate as ideally suited for these measures. The urethral channel can be maintained by these procedures and resection repeated if necessary. Caulk employed his cautery punch operation in conjunction with radium and roentgen ray therapy and concludes that it is the method of choice for the relief of obstruction and to retard the progress of the disease. Seventy-two per cent of his cases treated in this manner received complete relief from obstruction. Twenty-nine per cent of his cases lived or were living three years or longer and 10 per cent over five years.

Treatment of Metastases.—When pain is present as the result of metastases it is desirable to attempt its relief. Deep roentgen ray therapy has generally been found to be the most satisfactory method. Leddy recently reported a series of 40 cases with complete relief in three cases for varying periods of months, marked but incomplete relief in twenty-one cases and no relief in sixteen cases.

COMMENTS

While it appears that we have adequate means of eradication or control of prostatic carcinoma, failure to see the cases early enough renders the results of treatment still generally unsatisfactory.

It may be that in the future if the general public is educated to annual physical examinations and the physician routinely examines the prostate of all men over 50, a large percentage of carcinomas of the prostate will be found in an earlier stage.

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DISCUSSION

Dr. Clarence S. Capell, Kansas City: Dr. Ewell is a Missouri boy. He received his medical education in St. Louis and served his internship in St. Joseph's Hospital in Kansas City. Those of us who knew him "when" are proud of him, for now he has gone out into the world, the urological world, and has made good.

Dr. Ewell's paper is good and contains much that we should remember. In the diagnosis of cancer of the prostate there are two points I would like to discuss, namely; failure to make a rectal examination and the presence of hematuria. He mentioned both of these but I would like to repeat them for emphasis.

Doctors do not like to make rectal examinations so they neglect them to their own disadvantage and to the great disadvantage of the patient. A thorough rectal examination is one of the first things to do in making a diagnosis of prostatic hypertrophy or of prostatic cancer.

There seems to be a mistaken idea concerning hematuria associated with prostatic hypertrophy. Many seem to think that hematuria associated with prostatic hypertrophy always means cancer. That is not true, in fact, benign prostates are somewhat more prone to bleed than malignant ones.

Concerning the treatment of cancer of the prostate, Dr. Ewell spoke about major and complicated operations for the cure. I have come to the conclusion so far as my work is concerned that the more I do in the way of surgery for the cure of cancer of the prostate, the worse I make it. For some time I have contented myself with merely attempting to furnish drainage for the urine. I formerly made a suprapubic opening but now it seems to me that the best procedure is to cut a channel through the prostate for urinary drainage by means of the electric resectoscope.

Dr. Charles Greenberg, St. Joseph: I want to congratulate the doctor on bringing us so many valuable points. To me the important point is diagnosis and I agree with the essayist and also with Dr. Capell that the prostate as a rule is not examined. Examination of the prostate should not be confined to old men but should be routine in all males to find out whether there is hypertrophy, infection or any of the early signs of carcinoma.

As a rule the urologist sees these cases when they either have complete retention or have been suffering from urinary symptoms, and our duty is to relieve these symptoms regardless of the metastasis that may be present. No matter what the condition of the patient or what involvement he may have we still have that urinary difficulty to relieve. On account of the difficulty we who live inland have in procuring radium it is difficult to estimate the exact number of seeds required and I feel that unless you have the seeds planted thoroughly they are of no particular value. I agree with Dr. Capell that if we can make a channel for urinary drainage they will live just as long and as comfortably as by any other method.

I do not have much confidence in deep roentgen ray therapy. For years I have been doing a cautery punch and I find it necessary at times to repeat it after months or years, but the procedure can be done so easily and with so little shock to the patient that there is no objection to repeating the operation as long as the indi-

vidual can be kept voiding. There is a field for the punch in those cases that do not present much obstruction and I still prefer it.

We cannot overemphasize the importance of examination of the prostate gland in all cases. Do not wait until they are fifty or over; do not tell patients who are getting up two or three times at night that this condition comes with old age. When a man has nocturia there is pathology present. Also, when a man complains of nocturia, have him void and measure him for retention. Sometimes definite pathologic conditions exist without finding retained urine. I saw a case several years ago where a man in a ward had no urinary symptoms but we found a definite cancer of the prostate.

I think if you carry away the thought that you will make it a practice to examine the prostate in all males you will carry away something worth while.

Dr. G. H. Ewell, closing: I should like to emphasize again, as Dr. Greenberg has done, that approximately one third of the patients who come to us with carcinoma of the prostate do not come with symptoms that suggest the prostate. They come principally on account of pains in and about the hips and thighs. Approximately one third of the patients may complain of both bladder symptoms and pains and approximately one third of the patients come on account of bladder symptoms only.

I did not mention specifically in the paper, but I feel that if we can see these patients early, radium offers a definite advantage in the treatment of the disease. Ferguson and Barringer have shown by microscopic examination of prostate tissue removed at autopsy from patients who had carcinoma of the prostate and were treated with radon implants, and dying from other causes, that no evidence of carcinoma could be demonstrated.

COARCTATION OF THE AORTA WITH DEVELOPMENTAL DEFECT IN THE URINARY TRACT

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This case is being reported because of the two unusual conditions being present in one patient. Hamilton and Abbott[1] have a very interesting article on coarctation of the aorta, describing the condition accurately, and they enumerate the various theories promulgated to explain this anomaly. Blackford[2] goes into the development of the vascular system and explains the very interesting developmental pathology enumerated. Abbott[3] has compiled statistics on two hundred cases of the adult type of coarctation in patients over two years of age where autopsy showed stenosis or obliteration of the descending arch. Such a number of cases might cause us to think this condition is not rare, while as a matter of fact such a number of cases represents a great number of painstaking autopsies as the records show one case to 1550 autopsies. (Blackford.[4]) King[5] found that there had been four cases of coarctation recognized clinically at the Johns Hopkins Hospital in thirty-seven years. Abbott[3] found that a virtual diagnosis of obstruction of the thoracic aorta had been found in twenty-eight cases out of two hundred autopsies and of these twenty-one cases were diagnosed as definite coarctation. Thompson and Lamb[6] report an interesting case in which there was marked cyanosis of the left hand plus cardiac hypertrophy that led them to suspect the correct diagnosis of coarctation. Dock[7] stresses the importance of the difference in quality and time of arrival of radial and femoral pulses in cases of coarctation of the aorta, an easy and reliable test for this condition. Ernstene and Robbins[8] show very beautifully the dilated, tortuous intercostal vessels after postmortem injection of the arterial system with a suspension of barium sulphate in agar and sodium iodide solution.

At this army hospital (Fitzsimons General Hospital) in more than 1400 autopsies this condition was found only once, and unfortunately the patient was critically ill on admission and died before any detailed observations could be made. Death was distinctly cardiac with progressive edema of the lungs that did not respond to medication. The blood pressure registered the maximum of the mercury instrument, 300 mm., and unfortunately pressure in the lower extremities was not taken or it might have been possible to have suspected the correct diagnosis during life. There was, in this case, a distinct narrowing of the descending arch much like a ligature that had been tied around the aorta and there was almost a complete septum within the lumen of the vessel, this septum containing an aperture about the size of a small goose quill. In this case the pressure encountered by the blood stream resulted in marked collateral circulation with enlargement of the intercostal vessels and definite erosion of the fifth rib right and fifth and seventh ribs left, which was manifest by roentgen ray. Pictures taken show the erosion very definitely.

Table 1 shows thirty-two cases reported in the literature subsequent to the article by Abbott.[3]

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We wish to express appreciation to First Lieutenant Robert B. Skinner, Medical Corps, for the abstract of clinical record in this case.

Table 1. *Causes of Death in Coarctation of the Aorta in Adult (Over Two Years)*
(One case included of adult type in child 6 months old)

Author of Series	Total Cases Analyzed	Coarctation Stenosis			Collateral Circulation	Hypertrophy Heart	Ductus Arteriosus		Bicuspid Aortic Valve	Acquired Valvular Lesion	Aorta								Cerebral Lesion	Cardiac Death		Death from Other Causes	Diagnosis During Life			Erosion of Ribs	Characteristic Blood Pressure
											Ascending				Spontaneous Rupture		Mycotic Endarteritis										
		Atresia	Extreme	Moderate			Patent	Closed			Hypoplasia	Dilatation	Atheroma	Aneurysm Saccular or Dissecting	Heart or Ascending Aorta	At or Near Coarctation	Ascending Aorta	At or Near Coarctation		By Decompensation	Sudden		Actual	Virtual	Diminished Crural Pulse		
Strong, 1932	3	1	1	1	2	3	1	2	1	2	1	2	1	..	1	..	1	..	2 brains not examined	1	1	1	..	..	..	1	Not reported
Ulrich, 1932	2	..	1	..	1	1	1	..	..	1	..	..	..	..	..	..	..	..	1 brain not reported on	1	..	..	2	..	2	2	2
Wilson, 1932	1	..	..	1	1	1	..	..	..	1	..	1	..	..	..	..	..	..	....	..	..	..	..	1	..	1	1
Heine, 1931	4	..	..	1	1	3	..	..	..	2	..	3	1	..	..	..	..	..	Not reported	1	..	1	2	2	2	2	Not reported
Blumgart, 1931	2	..	..	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	No autopsy	..	..	..	..	2	2	2	2
Blackford, 1928	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	....	..	..	1	..	..	..	1	1
Sala, 1929	1	..	1	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	Not stated	1	..	..	..	..	..	Not stated	Not stated
Fray, 1930	2	1	..	..	2	2	..	1	..	1	..	2	1	..	..	..	1	..	Not stated	2	..	..	..	2	2	2	Not stated
Ernstene, 1931	1	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	Yes?	..	..	1	1	..	1	1	1
Hunter, 1928	1	Degree not stated			1	1	..	..	..	1	..	1	..	..	..	..	..	..	No autopsy	..	..	..	..	..	1	Not stated	1
T. East, 1932	2	..	2	..	2	2	..	1	..	..	..	..	1	..	..	..	..	..	Not stated	..	..	1	..	..	1	1	1
Thompson, 1921	1	..	1	..	..	1	..	1	..	..	1	1	..	..	..	..	..	..	Not stated	..	..	1	..	1	..	..	1
Wolffe, 1932	1	..	..	1	1	1	..	..	..	1	..	..	..	..	..	..	..	..	....	..	..	..	..	..	1	1	Not reported
Poynton, 1928	1	..	1	..	1	1	..	1	1	1	..	1	..	..	..	..	1	1	....	..	..	..	..	1	1	..	....
Moncrief, 1932	1	..	?	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..	....	..	..	..	..	1	..	..	....
Hampson, 1932	1	..	?	..	1	..	..	..	..	?	..	..	..	..	..	..	..	..	....	..	..	..	..	..	..	..	Yes
Shapiro, 1933	1	..	?	..	1	1	..	..	..	?	..	1	..	..	..	..	..	..	....	..	..	..	..	1	1	1	Yes
Read, 1932	1	..	..	1	1	..	..	..	1	..	1	1	1	1	..	..	..	..	....	1	..	..	..	..	..	Not stated	?
Carnett, 1932	1	..	1	..	1	1	..	1	..	..	1	1	1	1	..	..	..	..	....	..	..	?	..	1	1	1	1
Dock, 1932	3	..	..	?	1	3	..	..	..	..	..	..	..	..	..	..	..	..	....	..	..	..	..	1	1	3	2
Hardaway, 1933	1	..	1	..	1	1	..	1	..	1	1	..	1	..	..	..	1	..	None	1	..	..	..	..	..	1	....
Total	32	3	10	7	24	26	2	8	4	12	5	15	7	2	1	..	4	1		8	1	6	5	14	16	20	15

Table 2. *Adult Type*

Age in Decades	Males	Females	Total Number of Cases
3-10 years	3	2	5
10-20 years	3	1	4
20-30 years	2	1	3
30-40 years	6	..	6
40-50 years	4	1	5
50-60 years	3	..	3
60-70 years	3	..	3
70-80 years	1	..	1
Infant 6 months adult type coarctation (Sala 1929)	1		1
Male, age not given (Fry 1930)	1		1
	27	5	32

Table 2 shows a tabulation as to age and sex.

In addition to the pathology in the vascular system, this patient had practically an absence of kidney with atrophy of the ureter on the left side. More details of the findings will be given in the postmortem protocol.

CASE REPORT

A. R., aged 38, white male, admitted at 4:30 p. m., March 20, 1933; died 6:15 p. m., March 21, 1933. Occupation, baker; tropical service none. Family history: Father died of stroke, mother died when patient was six years old, typhoid fever; five brothers and five sisters died in infancy, causes unknown; one brother died aged 43, kidney trouble and mitral stenosis; two sisters alive and well; one brother alive and well. Patient had never married. Previous history: Measles, mumps, typhoid and whooping cough in childhood. Recovered from these without sequelae. At eighteen he was examined by a physician and told that he had secondary anemia due to insufficient diet. Patient states that he was not ill again until 1918 when he was in the Army. The patient's physician was interviewed and gave the following information: The patient was examined as early as 1916. At that time he diagnosed

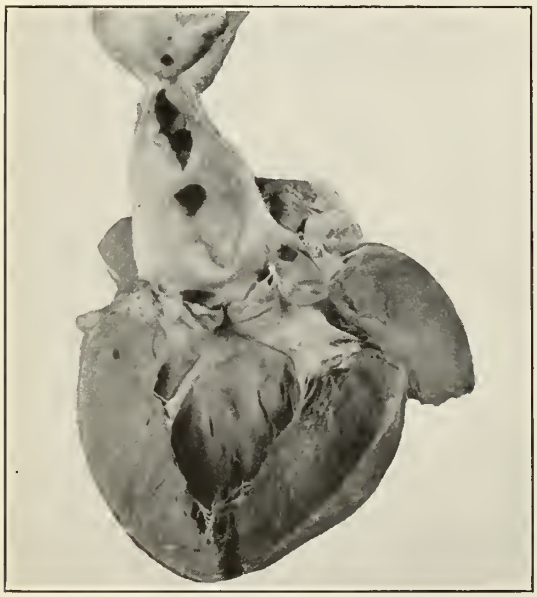

Fig. 1. Coarctation of the aorta with incomplete aortic septum. Heart shows immense thickness of the left ventricular wall and septum in lumen of aorta at coarctation.

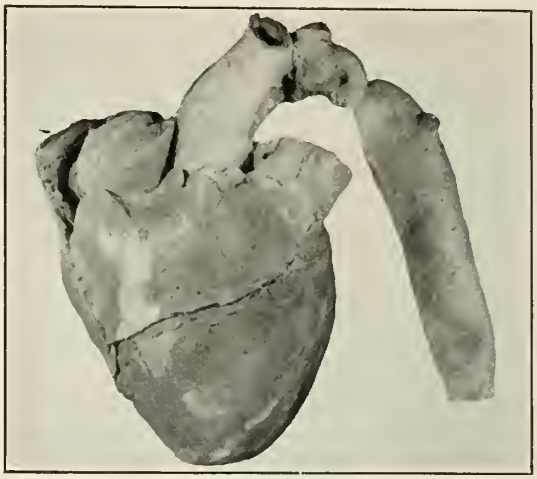

Fig. 2. Coarctation of the aorta.

the patient mitral regurgitation because of a loud blowing systolic murmur heard at the apex and associated with hypertrophy. At this time there was no shortness of breath, no edema, but the blood pressure was high. He does not recall the actual pressure. He came to the physician because he was feeling generally run down. No medication was prescribed but the patient was told that he had a leaking heart and that his blood pressure was slightly elevated for his age.

Early History.—Born at Sandy Creek, Pennsylvania, November 7, 1899. His mother died when patient was six years old so he was placed in an orphans' home; he received schooling here equivalent to the eighth grade. At the age of eighteen he left the orphans home and at the same time a physician examined him and told him that he had secondary anemia due to a food deficiency. After leaving the orphans' home he worked in the steel mills in Pennsylvania for one year; following this he became a baker and has followed this form of occupation ever since.

Military History.—He was drafted into the Army for restricted service in June, 1918, in Denver. He was sent to Vancouver, Washington. His duties here were helping to get lumber out of the forest for airplane construction. The service was, indeed, not restricted. While doing this duty he contracted pneumonia which was pronounced double pneumonia. He was hospitalized for one month. During this illness several telegrams were sent to his brother stating that he would not live twenty-four hours. He, however, recovered from this and was discharged from the Army January 27, 1919. Before discharge he was examined for about two hours by at least four Army surgeons who told him that he had a leaking heart.

His sister-in-law, a trained nurse, says that he has lived in her household since 1920. From the beginning he suffered from dyspnea and presented a waxy color to the face with a tendency for the lips to become cyanotic with a bit more than moderate exercise. In 1920 the patient applied for life insurance. This application was turned down because at that time his blood pressure was 210. After this until 1928 his condition remained essentially the same except at certain times his dyspnea was more marked. This was not accompanied by pain of any description nor with edema at any time. The patient consulted a physician one year ago. At that time the systolic murmur was more pronounced at the apex and his blood pressure

Fig. 3. Erosion of ribs.

was 240/130. The cardiac hypertrophy was again noticed. The urine was examined by this physician and was found to be essentially negative. No blood chemistry was done and to our knowledge has never been done. Patient has not worked, except at short periods, for the last two years. This was not so much because patient's condition did not warrant working but rather to the unemployment situation.

About March 3, 1933, fat free digitalis, 15 drops t. i. d., was prescribed for the patient. He continued to take this as prescribed until March 7, 1933, without apparent beneficial effects. On March 7 the patient walked about six blocks from home in the evening to talk with some friends at a local store. When he left the store he was suffering a bit more from dyspnea than usual. It took him thirty-five minutes to walk this six blocks back to his home as he had to stop and rest by sitting on the edge of the sidewalk. He was forced to rest every few feet. The six blocks, incidentally, was down hill. When he came in the house his sister-in-law said that she expected him to collapse any minute. He was panting for breath, his face was white and waxy and his lips were blue. He sat down in a chair for half an hour before he could get up stairs to go to bed. He claimed that he slept all night but the next morning he showed his sister the urine that he had passed. She says this urine contained blood. She also says that for the last three months the patient had to get up two to three times each night to pass his urine and that he drank water all the time. This sister advised her brother to have his urine examined. He took a specimen to a physician who found the urine to contain blood, many pus cells, large amount of albumin and many hyaline casts. His blood pressure at this time was above 300 and the heart condition was as he had found it before, only worse. The physician advised the patient to go into a hospital at once. At 4:00 a. m., Monday, March 20, 1933, patient vomited and became very short of breath. The next morning he told his sister about this and she noticed that his lower eyelids were swollen and that he was more short of breath than usual and that his lips were slightly blue. The hematuria continued from its onset until admission, March 20, 1933. It was not accompanied by pain, though patient had dull pain under the right costal margin and patient further believed that his urine was scanty and that micturition was less since onset of hematuria.

Physical Examination on Admission.—Patient was short (five feet, one inch) white male, well nourished. His skin had a waxy appearance and mucous membrane was dusky; he was suffering from rather slight dyspnea. His normal weight was 120 pounds and his present weight was 112 pounds, stripped. Patient had several carious teeth and cryptic tonsils. Vascular system: There was a marked sclerosis of the peripheral vessels, temporals and radials. Hypertension, severe, was evidenced by the great difficulty in compressing the radial pulse. The neck veins were bilaterally distended and pulsated. The blood pressure was 300 plus over 140 in both arms; not taken in legs. Heart: Apex in sixth intercostal space and 9 cm. to the left of the midsternal line. Blowing systolic murmur was heard best over the mitral area. The murmur could be heard, however, over the entire chest and was transmitted to the back, axilla and veins of the neck. The heart rate was 100 and an occasional extra systole was heard. The aortic second sound was markedly accentuated; the lungs were essentially negative. The genitalia and prostate were essentially negative. No laboratory work was done.

Upon attempted examination of the patient's abdomen, it was impossible for him to relax the abdominal musculature. His abdomen was protuberant and quite a large amount of gas was present in the colon. The edge of the liver was believed to have been felt about 3 cm. below the right costal margin but due to very poor relaxation this was not certain. Spleen was not palpable. No masses were palpated but more or less slight tenderness was elicited upon deep palpation under the right costal margin. No masses were felt. The nervous and osseous systems and muscles and joints were essentially negative. Symptoms of cardiac failure became more pronounced.

At 6:00 p. m., March 21, 1933, he began to cough and a pinkish, frothy material ran from his mouth and nose. He died at 6:15 p. m., March 21, 1933, of pulmonary edema.

Postmortem Findings.—The body is that of a short, stockily built, well nourished white male, aged 38 years, length of body 157 cm. and weight approximately 130 pounds. The sexual development and habitus of the body is essentially male. The hirsute distribution is normal and there is normal fat distribution, also. Rigor mortis is marked. Suggillation is present in dependent parts only, and is noticeably absent in the head

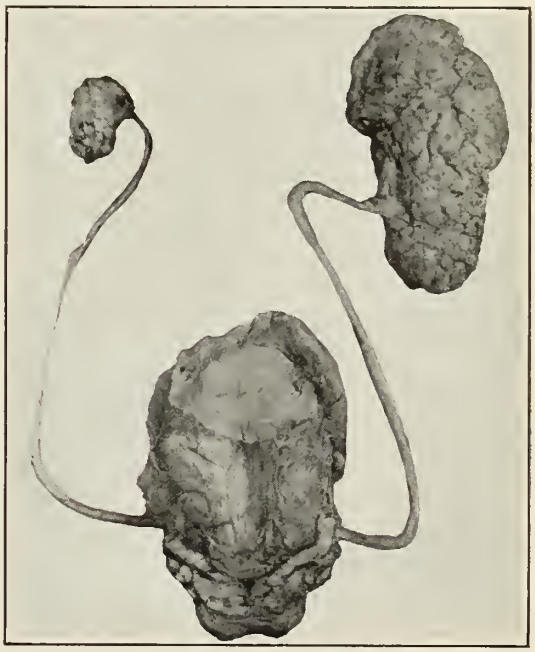

Fig. 4. Anomaly of urinary tract.

and neck. No scars or unusual marks noted. Clear. frothy fluid is oozing from the mouth and nares but the slightest manipulation of the body causes a sudden and copious gush of this froth. The neck, unusually broad at the base and tapering slightly to the angle of the jaws, is of the plethoric or "bull-neck" type. The superficial cervical veins do not appear engorged on external examination. As the larynx and trachea are dissected out it is found that both arteries and veins are greatly engorged and their walls much thickened. The thyroid arteries are large and tortuous. The thyroid veins are huge and surround the gland in a close network which prior to collapse almost hides the gland from view. The carotids and subclavians are engorged and permanently dilated. Their walls are much thickened but show no intimal sclerosis. Both internal mammaries are about three times normal in diameter. Tracing down both the axillary arteries the acromiothoracics, the lateral thoracics and the subscapulars are found greatly dilated. Even before the autopsy reveals the necessity for collateral circulation these unusual dilatations are so noteworthy as to cause speculation as to the exact nature of a possible circulatory obstruction.

Thorax.—The larynx, trachea and bronchi are filled with a clear, finely frothy fluid. The thyroid is normal except for its engorged vessels. The regional lymph nodes are normal. The mediastinal areolar tissue is moderately edematous. A remnant of the thymus, about three grams in weight and 3 by 2 by 1.5 cm. in size, is present and is much infiltrated by fat.

Pleurae.—Both lungs are adherent over all lobes by a loose meshwork of young, friable, fibrous adhesions, the meshes of which hold about 75 cc. of clear fluid on each side. There are scattering fine diaphragmatic and pericardial adhesions on both sides.

Lungs.—The right weighs 715 grams, the left 550 grams. Both are essentially alike, very voluminous and show numerous fine fibrous tags over the surfaces. On section the only lesion is excessive edema with no noticeable congestion. About 300 cc. of fluid drained rapidly away as soon as the lungs are sectioned. Crepitation is decreased, due to the extreme edema.

Heart.—Superficial inspection of the precordium shows nothing striking. The voluminous lungs hide most of the heart from view. On further examination it is evident that the heart is somewhat enlarged. The pericardial sac is not greatly dilated and contains about 100 cc. of clear amber fluid. Palpation reveals that the heart, while not greatly enlarged, is rather globular in shape, is in full systole, is unusually heavy and is surprisingly firm and hard. Palpating it through the sac, one is reminded of a croquet ball in size and consistency. On opening the sac the short, globular shape is noted, the systolic contraction confirmed and its consistence seems undiminished. The coronary vessels are visible through the epicardium but are not prominent. There are two irregular "milky" patches of epicardial thickening on the anterior surface. Handling the heart gives the impression that it is all left ventricle. No depression or any difference in consistency is apparent between the ventricular walls.

Fig. 5. Section of the kidney showing the undeveloped left.

On opening the right ventricle it is found to be compressed and molded over the convexity of the greatly hypertrophied left ventricle. It occupies only about one tenth of the heart volume. The walls are somewhat thicker than normal and the muscle firm to the touch. The columnae carneae are flattened and the papillary muscles are thin and stretched, apparently due more to the deformity from the left hypertrophy than to any dilatation of the right ventricle. Apart from the distortion, the ventricle is normal in size The tricuspid ring is normal, the valve leaflets thin and competent. The pulmonary is normal in all respects.

The location of the necessary incision for opening the left ventricle out through the aortic ring is uncertain. The exact situation and extent of the ventricular cavity in the seemingly solid mass of muscle is difficult to determine. When the section is completed, the ventricular cavity is found to be relatively small; the endocardium normal; the columnae carneae and papillary muscles large, rounded and well formed. The muscle is 3.5 cm. at its greatest thickness and varies from that to 1.5 cm. at the apex. The cut surface shows no excess of fibrous tissue, its appearance is normal, apart from its thickness, and its unusual firmness appears to be due partly to its anatomic hypertrophy and partly to its full systolic contraction. The mitral leaflets are thickened along their free borders. The anterior cusp is much shortened and causes marked incompetency. The ring is normal in circumference. The aortic ring is normal in size, the leaflets are slightly thickened but appear competent. The sinuses of Valsalva show patches of intimal thickening. The left coronary orifice is 2 mm. in diameter, the right about 3 mm. Neither orifice shows any sclerosis about or near it. Neither coronary is sclerotic. The heart weighs 520 grams.

Aorta.—First inspection does not reveal the essential abnormality of the aorta. The arch is not dilated. There is an anomaly in that the innominate is wanting. The right common carotid is about twice normal size and originates simultaneously with the enlarged right subclavian from the ascending arch. The left carotid is also about twice normal size and arises immediately to the left of the right carotid. About 5 cm. from this and near the end of the descending arch the left subclavian arises and is much longer than normal due to this anomalous origin. All these vessels are greatly thickened in contrast to the aortic arch, which shows little if any sclerosis. About 2 cm. below the origin of the left carotid, between it and the left subclavian, is a sharply indented constriction about the entire circumference of the vessel. It is so sharp as to appear as if it were the site of a tight purse-string suture. The constriction is somewhat deeper and sharper on the convexity of the arch than on its inner aspect. The deformity is apparent only after the surrounding mediastinal tissues and the moderately adherent left pleura are cleared away. There is no apparent connection between this and the remains of the ductus arteriosus. They are separated by a cm. or more. Neither at this time nor after sectioning can any condition be found to explain the deformity. The external diameter of the constriction is 1.2 cm. and on either side of it the aorta immediately resumes its normal

size. The intercostal arteries are much larger than normal at their proximal extremities and are dilated, rather than sclerotic.

On opening the aorta the structure of the constriction is immediately sought. On the inner surface at the point of constriction one finds what may be described as a ledge or ridge arising from the entire circumference of the vessel wall, with a small round aperture in the center less than 4 mm. in diameter. This structure may be likened to an ordinary washer wedged across the lumen of the vessel. The outer edge of this obstructive ledge is about 2 mm. thick and tapers to less than 1 mm. at the central aperture. As far as the eye can determine, section shows that the majority of this obstruction is made up of intima only except at the mural attachment where there is a slight ingrowth of media as well. The obstruction is surprisingly regular in its circular outline and the aperture is centrally placed. It is not tough or fibrous in texture, neither is it elastic and it is easily torn.

The aortic intima shows a sprinkling of small yellowish areas of thickening. An area of much greater thickening, showing beginning degeneration and softening and a scant cm. in diameter, is seen at the left carotid orifice. Just below the left subclavian orifice is another similar area with well developed surface ulceration and about 1.5 cm. in diameter. Both these are confined to the intima. Another area 1 by 4 cm. in size extending upward from the bifurcation shows ulceration and is covered by an early thrombus mass. There is no calcification in any of these lesions. No intimal lesion is present at the constriction. The intercostals are dilated but show little if any mural thickening.

Both venae cavae are dilated to about 6 cm. but this engorgement does not affect the compressed right auricle in the least.

The right 5th and the left 5th and 7th ribs, which showed erosion in one roentgen ray plate, are removed from the sternal to the spinal articulations and are thoroughly cleaned. In all three there is marked deepening and erosion of the posterior portion of the costal groove. Instead of a smooth, regular, shallow depression, such as is normally seen, the groove at the spinal extremity of the ribs is irregularly deepened and accentuated by a pitting which is not unlike the "pothole" erosion of rocks by water. These erosions are smoothly contoured and not roughened by necrosis. The periosteum is continuous over them, even though the pits have almost perforated through to the outer surface of the ribs posteriorly and though the bone in many of them is so thin as to be translucent. As mentioned, the erosion is most pronounced at the spinal end of the ribs nearest to the aortic origin of the intercostals. The groove gradually shallows toward the sternal end and at about the middle of the ribs is no deeper than normal. The irregularity of the erosion has altered the outline of the inferior costal border to such an extent as to be clearly visible in the roentgen ray plate at the necessary angle of ray projection. The other ribs are carefully palpated after superficial dissection in situ. The deepening of the grooves is present in all of them but varies slightly in degree compared to that seen in the removed ribs. The preponderance of the erosion in the spinal end of the costal groove can be easily verified in these as well even though they are not removed. It is difficult to understand why the erosion is so prominent in the portion nearest to the aortic origin of the intercostals instead of in the portion nearest to the internal mammaries which are so obviously dilated for purposes of collateral supply. It seems that the pressure should be greater through this collateral supply from above the aortic obstruction than through the systemic arteries below it. There is no gross structural variation in the intercostal arteries themselves to account for this.

Abdomen.—The peritoneal cavity contains neither free fluid nor adhesions. The organs are all normally placed except that the left kidney cannot be felt.

Liver.—Weight 1520 grams. The liver is normal in size, contour and consistency. The capsule is not thickened but the capsular vessels are prominently visible as grayish, opaque ramifications over the whole surface. They are not sclerotic enough, however, to be palpable to the touch. It cuts with normal resistance and the cut surface shows normal markings and no visible congestion. The gallbladder is normal but the small amount of bile is yellowish-brown and very fluid.

Spleen.—Weight 210 grams. The spleen is large but its shape and consistency are normal. It sections with ease and its cut surface shows a moderate increase in the framework. The Malpighian bodies are easily seen. The vessels are noticeably sclerotic and stand out prominently 1 mm. or more above the surface as minute stiff well open tubes which are easily felt by the finger.

Pancreas.—Weight 105 grams. Essentially normal.

Kidneys.—The left kidney cannot be palpated beneath the covering peritoneum though the false capsule is scanty and the left adrenal is easily palpable. Dissection reveals that this kidney is represented by a small, flat mass of tissue weighing a scant 2 grams, and measuring 3.7 by 2.5 by 0.7 cm. It is roughly kidney shaped and is less than half the size of the left adrenal. Section shows no hint of a kidney structure except that there is a minute cavity into which the shrunken ureter opens and which seems to be the remains of the pelvis. Otherwise, the tissue is partly fibrous and partly parenchymatous so far as the eye can determine. It is too soft and flabby for purely fibrous tissue and too stiff and resilient for kidney parenchyma. The ureter, whose lumen is about 1 mm. in diameter and whose outside diameter is a scant 3 mm., descends with no change to its middle third where there is a slight bulbous dilatation. This bulb rapidly constricts to a thread-like cord occupying the middle third of the ureter and having no demonstrable lumen. It is less than 1 mm. in outside diameter at its thinnest point. It then gradually increases until approximately the lower third is the same size as the upper third and is normally inserted into the bladder. There is nothing of an anatomical nature to explain the atresia of this ureter. It is neither surrounded by adhesions nor pressed upon by any abnormal organ or growth. It is easily dissected for its entire length.

The right kidney is small. It weighs 80 grams and measures 11.5 by 6 by 2.1 cm. It is somewhat pear-shaped, the upper pole being the larger. The ureter is inserted low, about 3 cm. from the inferior border. Its outward appearance is unusual. It is fetal in type and is irregularly and finely lobulated. It is pale in color and has a curious resemblance to a piece of stewed sweet-bread. The capsule, though very thin, cannot be stripped away. In consistence it is softer than normal and it sections easily. The cut surface is pale. The normal structural markings are not visible. The calices are small, narrow and rudimentary and open into a contracted pelvis. The columns of Bertini are inconspicuous. The cortex, in which no glomeruli are visible, is pale and blends gradually into the only slightly darker medullary portion. The pyramids are indistinctly demarcated and are destitute of striae. The whole cut surface is irregularly mottled with more or less pale areas, some of which in the lower pole appear almost necrotic. The right ureter is normal in size and appearance.

The left renal artery is threadlike in size. The right is much smaller than normal and is not sclerotic.

Adrenals.—Both are normal in size, shape and position. The right shows slight cortical hyperplasia.

Gastro-Intestinal Tract.—Normal throughout. The lymph nodes of the entire abdomen are normal.

Pelvis.—The bladder and ureteral orifices, prostate, seminal vesicles and vasa deferentia are all normal.

Head.—The scalp and skull are normal.

Brain.—Weight 1425 grams. The circle of Willis and all the meningeal vessels show dilatation, engorgement and moderate sclerosis. Section reveals no abnormality in the cerebral or cerebellar depths. There is no congestion of the brain substance.

ANATOMICAL FINDINGS

1. Obstruction of the descending branch of the aorta (coarctation), apparently congenital, with establishment of a compensatory collateral circulation by way of the internal mammaries, acromiothoracics, lateral thoracics and subscapulars.
2. Hypertrophy, cardiac, left, marked, due to 1.
3. Valvular heart disease, mitral insufficiency.
4. Aortitis, chronic, ulcerative with thrombosis.
5. Edema of both lungs, marked.
6. Persistent thymus.
7. Atrophy of left kidney, apparently congenital.
8. Atresia of left ureter, due to 7.
9. Hypoplasia of right kidney, fetal type (arrested development).
10. Erosions of the costal groove in all ribs due to compensatory collateral circulation through the intercostal arteries.
11. Pleurisy, chronic, fibrous, adhesive, bilateral.
12. Diaphragmatic and pericardial adhesions, bilateral, slight.
13. Hydrothorax, bilateral, slight.
14. Edema of mediastinal tissues.
15. Hydropericardium, slight.

SUMMARY

This group of cases, in keeping with previous observations, shows coarctation of the aorta to be seen most frequently in the male, twenty-seven of the thirty-two cases being males, and the condition is shown to be somewhat more frequently recognized in middle age. One case (Carnett and Howell[9]) lived to the age of seventy-five, death resulting apparently from gastric carcinoma and pneumonia. One infant, six months of age, is included in the tabulation because of the adult type of coarctation being found. (Sala and Nachami.[10]) Some difficulty was encountered in tabulating these cases as the articles did not cover all the points enumerated and in some cases the conclusions could not be verified. But it would seem quite evident that a case of coarctation has the following diagnostic points that should lead to a definite diagnosis during life:

1. High blood pressure in the upper extremities with a slight discrepancy between the two arms and a marked discrepancy between the upper and lower extremities.
2. Hypertrophy of the heart.
3. Marked increase in the collateral circulation.
4. Erosion of the ribs.

Then if the roentgen ray taken from the oblique position shows the coarctation there is no question as to the diagnosis.

Any case showing a high blood pressure, and particularly in a young adult, should stimulate the physician to eliminate this condition so that patient may be properly advised to avoid undue exertion, as well as to avoid subjecting the patient to useless therapeutic measures.

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EFFECTS OF INTRAVENOUS ADMINISTRATION OF HYPERTONIC SOLUTIONS OF DEXTROSE, WITH ESPECIAL REFERENCE TO CEREBROSPINAL FLUID PRESSURE

Jules H. Masserman, Baltimore (Journal A. M. A., June 23, 1934), studied the effects of the intravenous injection of solutions of dextrose in various amounts and concentrations in eighty-five normal patients The administration of 50 Gm. or less in 20 per cent solution produced no untoward clinical sequelae other than diuresis; however, the intravenous injection of 100 Gm. or more in 35 to 50 per cent solution caused headaches and other adverse symptoms in 72 per cent of cases, whereas 58 per cent of the patients receiving 185 Gm. or more suffered transient pyrexia. The intravenous administration of isotonic solutions caused a transient increase in cerebrospinal fluid pressure; with hypertonic solutions in effective concentration (100 to 200 Gm. in 20 to 35 per cent solution) this initial rise was followed by a secondary fall in cerebrospinal fluid pressure, which in turn was superseded within an average of three hours by a tertiary increase to levels from 8 to 148 mm. of water above normal. The latter phenomenon is of clinical significance in relation to the late adverse effects sometimes observed in cases of intracranial hypertension treated by the intravenous injection of strongly hypertonic solutions.

ECTOPIC PREGNANCY: DIAGNOSIS

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The errors so often made in the diagnosis of ectopic pregnancy have been the incentive for the presentation of this subject. While the diagnosis of the condition presenting the classical symptoms may have its difficulties, those cases that show atypical signs and symptoms are very confusing and the diagnosis is not made until the abdomen is opened. It has been stated that a 40 per cent error in the diagnosis is not a too high percentage but I feel that this is entirely too high when the statistics of the large clinics are studied and in a personal series of 137 cases the mistake in the diagnosis was made in less than 8 per cent. Farrar states that any one who sees a large number of ectopic pregnancies sees more atypical than typical cases but this can only be classed as a personal opinion and depends on what is meant by typical and atypical cases.

I feel that the symptoms of ectopic pregnancy are much better known today than twenty years ago and those of us who receive cases referred by the general practitioner as a rule have the correct diagnosis made before we see the patient.

The classification of these cases into typical and atypical should be based on the pathology present instead of the symptoms. If the subject is studied from this angle we arrive at a much better understanding of the case.

Anatomically the location of an ectopic pregnancy is in the ampulla, the tubal isthmus or interstitial portion of the tube (the latter condition being rare). In very rare instances the pregnancy may be in the ovary or in the abdominal cavity.

CAUSES OF TUBAL PREGNANCY

The causative factor of the fertilized ovum not reaching the uterine cavity may be that the tube is constricted from without by adhesions or the presence of pelvic tumors; if the constriction is from within it is due to inflammatory changes in the tube generally caused by a gonorrheal infection. In those cases not caused by an infection the ovum may be stopped on its way to the uterus by diverticula in the wall of the tube.

If the cases are classified and studied from the anatomical and pathological side I am sure that we can arrive at a much better understanding and with this in view the subject will be taken up as to the location of the ovum in the different pelvic structures and the symptoms produced thereby instead of from the symptoms alone.

The development of the ovum is the same whether it is in the uterine cavity or in the tube. The ovum when held in the tube, whether in ampulla or the isthmus of the tube, burrows itself into the wall of the tube and as a general rule a decidua is formed. The lumen of the tube at the ampulla is wide and the wall is thin; in the isthmus this condition is reversed, but the growth of the ovum continues the same in either location. The walls of the tube in either location cannot stand for long the eating of the villi into the muscle fibers and blood vessels of the tubal wall and if the ovum is in the ampulla it pushes out into the pelvic cavity (tubal abortion) or if in the tubal isthmus the tube ruptures into the abdominal cavity or occasionally into the broad ligament. De Lee has well described this procedure when he says, "in the tube the ovum acts like a rapidly growing destructive neoplasm."

Tubal Abortion.—Due to the development in this location the ovum seeks the way of least resistance which is through the fimbriated end of the tube, the bleeding coming from the separation of the ovum; the blood may clot in the ampulla and block further bleeding or may drip down into the pelvis in varying amounts and if in large amounts a pelvic hematocele is formed. The ovum is in some cases expelled from the tube; in other cases the ovum is retained in the ampulla.

The symptoms produced by the above described conditions are based on what has occurred pathologically and in making the diagnosis a careful history elicited from the patient is added to our physical findings. Tubal abortion generally occurs before the eighth week. The history is usually that the woman has gone over her menstrual time a few days or sometimes a week or so. Following the days of amenorrhea there is intermittent bleeding (spotting) that is rather prolong but less in amount than the regular menstrual flow. Pain occurs before or after the bleeding has started, is of rather sudden onset occurring in one or other of the lower pelvis quadrants. This pain often disappears to recur in the same locality but generally with more severity. Between these attacks the patient is comparatively free from pain but upon palpation of the abdomen or bimanually pain is elicited. Nausea with or without vomiting is often present. In some cases patients complain of pain over

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the bladder and have a frequent desire to empty the bladder. Numerous instances have come to my attention where the patient has had very severe pain in the rectum and anus which is increased upon defecation. Personally I do not think that the leukocyte count is of much help; a lower hemoglobin is of some value; a lower blood pressure may be of some significance if we know the patient's normal blood pressure as is the Aschheim-Zondek test if we have sufficient time to wait for the report without jeopardizing the life of our patient. Cullin's sign (bluish discoloration about the umbilicus) is only found when there has been a large hemorrhage. Polak calls attention to the severe pain caused by the movement of the cervix in any direction upon vaginal examination. The presence of a mass in either adnexal region may aid in the diagnosis but palpation of such a mass is dangerous; it was the author's experience to rupture such a mass when examining a patient in his office. The presence of a pelvic hematocele is confirmatory evidence as this occurs after there has been considerable bleeding. When this does occur the hematocele is often in the culdesac of Douglas or the blood may fill the vesicouterine pouch and cause the uterus to be pressed downward and may cover over the uterus. In the typical case the uterus is pushed upward and forward against the anterior abdominal wall or may be pushed upward and forward and to either side. The older the hematocele the more definite its outlines and the easier it is to make the diagnosis.

Tubal Rupture.—Not so common but much more serious is the rupture of a tubal pregnancy. In these cases there is a sudden onset of pain occurring ofttimes on exertion or from trauma and the patient experiences a sudden onset of pain on the affected side; this pain soon becomes diffuse over the entire lower abdomen. Nausea and vomiting and bleeding and shock are present. The shock may be out of proportion to the blood loss. The blood picture shows anemia and the blood pressure is low. If the case is seen early a bimanual examination reveals only an enlarged uterus but as the condition progresses the clotted blood will manifest itself by a hematoma.

When the pathology of tubal rupture is studied we find that this rupture is caused by the destruction of the tubal wall by the trophoblast and that the ensuing hemorrhage from the torn blood vessel produces further tearing of the tubal wall.

The amount of bleeding at times may be very large and is often out of proportion to the size of the rent in the tube. Lockyer attributes this to the secretion of an antithrombin by the epithelium of the chorionic villi. Numerous reports of patients dying from hemorrhage are reported but I have never had such an experience among quite a number of cases.

In summarizing the symptoms in ectopic pregnancy (tubal pregnancy) it is found that pain and bleeding are the two major symptoms. A study of the menstrual history is exceedingly important as is the onset, location and character of the pain.

There is seldom any considerable elevation in the temperature unless there is an infected hematocele present. There is an increase in the pulse rate in proportion to the presence of hemorrhage and shock and this also applies to the blood pressure readings.

The blood picture is of little importance. The hemoglobin determination is not always a correct index as to the anemia present as this does not drop until some time following the hemorrhage. The differential count is at times of some aid in differentiating an ectopic from a purulent salpingitis. Urdan is of the opinion that the blood sedimentation test is of only slight value. A positive Aschheim-Zondek test is of value but a negative test should not deter one from making a positive diagnosis when the other findings are suggestive of ectopic pregnancy.

In a study of our series it was found that previous sterility is not an important factor but that in some cases a history of some previous pelvic infection and of a one child sterility were present.

In considering the differential diagnosis the most common conditions to be confused with ectopic gestation are abortion, acute salpingitis and acute appendicitis.

Abortion.—The pain is more or less rhythmical similar to labor pains and the hemorrhage is more or less profuse with clots.

Acute Salpingitis.—May be confused with tubal abortion but is quite often bilateral while an ectopic pregnancy is unilateral. The blood picture will be of some assistance and the menstrual history should be carefully studied.

1216 Missouri Building.

M. A. Stewart and A. N. Boyd, Houston, Texas (J. A. M. A., Aug. 11, 1934), employed a new douche, composed of 15 per cent chloroform in light vegetable oil, in the treatment of seventeen cases of traumatic dermal myiasis.

CANCER OF THE CERVIX

IODINE REACTION IN THE EARLY DIAGNOSIS

FREDERICK V. EMMERT, M.D.

ST. LOUIS

It is true of cancer of the cervix just as it is true of cancer wherever it attacks the human body, that the most important factor in its successful treatment lies in recognition during its very early stage of development. The absolute necessity for identifying cervical cancer early is easily demonstrated by the knowledge that otherwise two out of every one hundred women over forty years of age are doomed to die of cancer of the uterus if the present mortality rate continues. In 90 per cent of all cases of cancer of the uterus the malignancy begins in the cervix and of these patients the majority have had one to four children.

Of our 469 late or advanced cases of cancer of the cervix at the Barnard Free Skin and Cancer Hospital[1] only 24 were alive and well five years after treatment. On the other hand, of the 42 patients treated during the early stages, 21 were alive five years later. These figures show that we can immeasurably improve the chances for living if the patients will give us a chance to recognize the disease early.

Miss Eleanor Cockerill[2] of the social service department of Barnard Free Skin and Cancer Hospital at my suggestion interviewed a group of patients, most of them in the advanced stage of the disease, in order to discover the reasons why their cancer had been permitted to reach such a stage. She found that one half of the patients claimed they had been under the care of a physician for periods of time ranging from two months to one and one half years during which time the signs of early malignancy were not recognized. We have no means of telling whether the fateful delay can really be blamed on physicians in so large a percentage of the cases. At any rate here is one of the histories obtained by Miss Cockerill.

REPORT OF CASE

Mrs. M. reported that she had been "puny" since June. A physician visited her at her home every week from June 1 until the last of September. Her loss of blood and pain were attributed to the change of life. A pelvic examination was not made and she was given medicine by mouth to control the bleeding. She finally fainted twice during one day and was rushed into a nearby hospital where a diagnosis of cancer was made and she was referred for proper treatment.

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From the Barnard Free Skin and Cancer Hospital.

One fourth of the patients interviewed confessed that their delay in treatment had been due entirely to their own negligence. All these patients attributed their symptoms to the change of life. They discussed their trouble with neighbors, friends and relatives and were assured that theirs was a common experience and that all women had to pass through it. When their bleeding reached an alarming point they frantically sought treatment. The third reason for delay in treatment was present in one eighth of the patients. These women consulted a physician early in their illness and were carefully examined. Definite treatment was recommended but they were afraid to undergo it. Only in one eighth of the patients was immediate recognition of the disease followed by immediate treatment, and this is the group in which we obtained cure in almost 50 per cent.

In so far as this deplorable loss of time is caused by the indifference of women toward abnormal discharge or bleeding, the American Society for the Control of Cancer[3] is doing its best to open the eyes of the public by means of a systematic and nation-wide campaign of education and I believe we shall see its beneficent effect in time.

There are also indications that show a good part of the medical profession has become more aware of its responsibility in the fight against cancer. The signs and symptoms of cancer of the cervix are strenuously presented to the students and ceaselessly discussed in medical societies. Special efforts have been made to prove to the profession at large that cancer really is curable.

The next step is to discover cancer of the cervix before it produces any danger signals, that is to say, before it causes discharge, bleeding or pain. This earliest stage of the disease is probably only of short duration; but if we can discover the disease during this

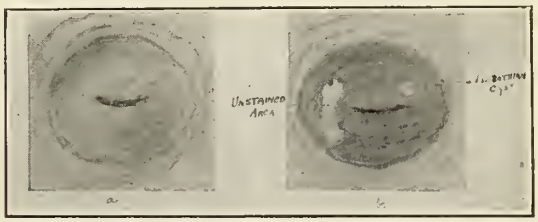

Fig. 1. Patient from gynecological clinic of Barnard Hospital, aged 53, no pelvic or vaginal symptoms.
a. Cervix appears normal through the speculum.
b. Routine Lugol's test was done by painting the cervix with an aqueous solution of iodine. The area to the left of the external os did not take the stain. A biopsy was done and microscopically showed an advanced leukoplakia. The smaller unstained area is a nabothian cyst.

limited time we can almost guarantee a cure.

To detect cancer of the cervix in this truly initial stage we have in recent years become possessed of two diagnostic aids both of which require the routine use of the vaginal speculum in every woman who consults us for any reason whatsoever, even if she has no symptoms referable to her genital organs.

The first of these aids is the colposcope designed by Hinselmann of Germany.[4] I have presented this method elsewhere and shall here merely say that the colposcope is a pair of binoculars through which the cervix can be inspected under a strong light and with considerable magnification. Thereby even minute lesions which otherwise would escape the naked eye can plainly be seen. Such a lesion may be a tiny carcinoma which at this stage looks more or less like a granulation, or it may be a small whitish or pearly-grey area, a so-called leukoplakia, which very frequently turns into cancer. As a matter of fact, I once was able to recognize by means of this colposcope a leukoplakia of the cervix[5] which on microscopic examination proved to be carcinoma. Unfortunately, this excellent appliance is not yet very practical for general use because the instrument is rather complicated and expensive.

On the other hand, the second diagnostic aid, which we owe to Schiller of Vienna,[6] is surprisingly simple and accessible to every practitioner. The so-called Schiller test is based upon the large quantities of glycogen which the outer epithelium of the cervix normally contains staining a deep brown if iodine in the form of Lugol's solution is applied. Where, however, the epithelium has been altered or destroyed, the glycogen disappears and such an area remains unstained and stands out white or pale pink against the dark background of the stained normal surface. All one has to do to follow the directions given by Schiller is to expose the cervix in a speculum very gently to wipe it dry and then to paint it and the surrounding vaginal walls generously with a loosely wound cotton applicator which is saturated with Lugol's solution. Any area, however small, which in good light can be seen to have remained unstained, should be regarded with suspicion. This test is not altogether specific. There are four conditions in which glycogen may be absent so that unstained areas remain, namely; (1) carcinoma in its earliest stages; (2) leukoplakia which may be either a forerunner of cancer or a sign of syphilis; (3) ulcerations or erosions which have lost their epithelial coverings; (4) desquammation of the surface epithelium due either to injuring the cervix with sharp instruments or the rough insertion of the speculum.

Therefore, where we find an unstained area on the cervix we cannot at once say that this is cancer, but we should excise it for microscopic study. In this fashion Schiller discovered eighteen cases of cancer in as many months by applying his test to all women who came to his clinic. Graves[7] of Boston reported three unexpected discoveries and I have quite recently detected three cases by the routine use of the Lugol test. All three cases have been operated on with good postoperative results.

The all important value of this new test lies in the possibility of locating lesions accurately for the purpose of removing specimens for diagnosis. It goes without saying that we must apply the test not only in cases which already have aroused our suspicions because of clinical manifestations, but we should use it as a matter of routine in every woman, at least those women near or at the menopause who come to our office for any reason whatsoever. It should not be too difficult to persuade a woman, say of 45 years, who consults us for a catarrh of the nose to let us make this test on the cervix if we explain to her that the new method enables us to discover cancer earlier than ever before. If the test is negative, that is, if the cervix appears uniformly stained, she has the satisfaction of knowing that she is safe; if we happen to find an early cancer she has the satisfaction of knowing that she can be cured.

Eventually, the idea of systematic health examinations at stated intervals will penetrate to the public at large and then this test of Schiller's should form a part of every examination. The general practitioner, more than anyone else, will be called upon to perform these examinations, and now that he has this simple test at his disposal there rests on his shoulders an increased responsibility for recognizing cancer in the earliest stages when it can yet be cured.

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DISCUSSION

Dr. J. Milton Singleton, Kansas City: We are certainly very much indebted to Dr. Emmert for calling this test to our attention and for displaying the pictures.

I have for a number of years been preaching to the students at Kansas University and to internists at the General Hospital that regardless of the specialty they might enter; regardless of what a woman is being examined for, no examination is complete without a careful palpation of the breast and a speculum examination of the cervix.

In going over the literature in regard to cancer of the cervix or cancer generally there are some encouraging things in the serological and biochemical reaction of cancer patients, and careful study of these reactions and the conditions surrounding cancer make us feel encouraged that some day the cause of cancer may be found. If the condition itself is observed with the associated conditions and the serology and biochemistry of the patient studied and understood, there is some hope that in the future we may discover the cause of cancer.

The paper of Pemberton and Smith several years ago reported a series of 1400 cases, women who had had cervical amputation, cervical repair or cervical cauterization. A follow-up of these women showed that in those women who had had cervical amputation no cancer occurred over a period of years; in those who had had cervical repair very few cancers occurred, and in those who had had cervical cauterization still a few more. That calls our attention to the fact that getting rid of the diseased tissue in the cervix is rather necessary until we know the cause of cancer, to cut down the rapidly increasing cancer mortality.

We know that the incidence of incipient carcinoma of the cervix and advanced carcinoma of the cervix must be identical, and if we can in some manner not wait for the appearance of advanced carcinoma—I do not mean hopeless, but the early advanced stages when by visual examination it is apparent or suspicious—we can in those cases get a gratifying number of cures by proper treatment, either serological, by radium or by deep roentgen ray therapy, how much more satisfactory our results will be if we examine every patient who comes into the office or the clinic with this test that Dr. Emmert has described to us.

The life history of a cancer covers ten, twelve or more years, a long period of chronic cervicitis, and then a shorter but relatively prolonged period of incipient carcinomatous changes. I have been using this test in the charity service with which I am connected in Kansas City and also in my private practice, and while I have discovered no cases of incipient cancer, as Dr. Emmert says, when this is negative it is a very gratifying indication that cancer is not there. I certainly appreciate Dr. Emmert's paper and I think we should bear this test in mind and apply it in every case we examine.

Dr. R. M. Waller, St. Joseph: I enjoyed this paper very much but I think Dr. Emmert neglected to stress one important thing. He emphasized the examination of women around the change of life but it is equally as necessary to also examine younger women because most of us have seen epithelioma of the cervix under 30 years of age, probably some under 25.

The first case that forcibly struck my attention was that of a young woman 28 years of age who came in the Chicago Lying-In Hospital with an abruptio placenta at seven months gestation. I assisted Dr. E. L. Cornell who performed a vaginal Cesarean after doing deep Dührssen's incisions. This same patient was seen by me about one year later at the gynecology department of the Washington University Dispensary with a hopelessly inoperable cancer of the cervix with metastases.

I also recently had as a patient a young woman aged 26 years from Cameron, Missouri. She had been married at eighteen years of age and was deserted later when she was about six months pregnant. She lived in the home of relatives who were very poor. She had noticed a discharge for about nine months but did not mention the fact because of fear of expense. One night while milking a cow she had a severe vaginal hemorrhage and fainted. A physician saw her for the first time soon after. Three days later a more severe hemorrhage occurred and she was rushed to the hospital. She was practically exsanguinated and pulseless on arrival. A transfusion was given and again four days later with marked improvement. A large mass protruded from the vulva and the pelvis was frozen. Dr. McGlothlan inserted radium for this grade four epithelioma and a few days later massive deep roentgen ray therapy was given. In three months time she had gained twenty-five pounds and was doing farm work as usual. She came back for inspection four months after leaving the hospital. A small area of cancer on the right lip of the cervix still remained but the pelvis was otherwise free. I then did a Wertheim followed by roentgen ray therapy in fourteen days. She has again improved and is at work at this time.

While an assistant to Dr. Willard Bartlett of St. Louis he often cored out the gland bearing portion of the cervix in doing a supravaginal hysterectomy. At first I thought he was too radical. Since then it has been my privilege to see several cancers of uncored cervical stumps. It is important, therefore, to examine every cervix and if diseased it is no trick to remove the gland bearing portion of the canal at the time of the hysterectomy. It adds negligibly to the time and risk of the operation.

Dr. E. Lee Dorsett, St. Louis: I am sure we are indebted to Dr. Emmert for calling attention again to this method for the diagnosis of early carcinoma of the cervix.

The great difficulty that we have in gynecology and obstetrics is that our patients are prone to neglect having examinations made until long after they have symptoms of a malignant condition of the uterus. By conservative treatment we are able to correct early nonmalignant lesions of the cervix but a great many physicians do not see their cases after delivery and early lesions are overlooked. It is of the utmost importance that every patient have a postpartum examination and all lesions found at this time should be eliminated.

One of the greatest fallacies that comes to our attention is that physicians tell their patients that "flooding spells" are a part of the menopause and are to be expected. It has been my experience that many of these cases are far advanced cases of carcinoma of the uterus and were never examined by a physician.

In regard to Dr. Emmert's technic I want to call attention to the fact that a microscopical examination of the tissue removed from the suspected area must be made to clinch the diagnosis of carcinoma.

Dr. Fred Emmert, closing: I certainly appreciate the discussion because my object in presenting this paper was to reach the general practitioner, the man out in the country who really has his patients under his control. We who are specializing do not see patients unless they are referred and heretofore that has been late in the disease.

Dr. Waller very rightly mentioned that young women do have cancer, and it is a very good rule to follow our obstetric cases postpartum, not for six weeks but for years afterward. We do that and try to keep in contact with these patients especially those who are apt to develop carcinoma.

One of the doctors has just called my attention to the fact that we do have carcinoma of the cervical canal. That is not as common as the squamous cell cancer and the diagnosis is not so easy.

FIBROMAS OF THE SMALL INTESTINE WITH INTUSSUSCEPTION

REPORT OF TWO CASES

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AND
GUY D. CALLAWAY, M.D.
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Our interest in fibromata of the small intestine was stimulated by our having within a very short period two patients who were brought into the hospital on account of intestinal obstruction and who upon operation were found to have tumors of this type, both producing intussusception.

REPORT OF CASES

Case 1. *Complaint and History.*—Mrs. E. W., aged 38, entered Springfield Baptist Hospital May 15, 1933, complaining of severe abdominal pain. The pain was colicky in character, radiating from the lower abdomen upward and accompanied by nausea and vomiting. At irregular periods for the last eight months she had been having similar attacks. They had been gradually growing more severe and more frequent so that for two months she had been confined to her bed most of the time. Except for the present illness she had always been well.

Examination.—The patient was well developed and appeared to be suffering paroxysmally with acute abdominal pain. Temperature was normal, pulse 82. No physical findings of importance except those of the abdomen. Abdominal muscles flabby. No distention, no rigidity, no apparent tenderness, no displaced organs and no palpable masses found at first. As the examination proceeded, however, a peristaltic wave was seen, followed by two others during a twenty minute period. The waves appeared in the lower right quadrant and moved upward. At these times the patient complained of severe cramp-like pains. With each wave a mass about 2 by 4 inches could be palpated, which could be caused to disappear upward with massage. With the disappearance of the mass the pain was relieved. A bimanual examination revealed no pelvic pathology. Urinalysis and blood examination negative.

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The patient remained in the hospital four days but unfortunately roentgenograms were made only of the colon. Kaomin, tinture of belladonna and petrolagar were prescribed as a test treatment. On this medication the patient had fewer pains and was therefore allowed to return home under observation of her family physician.

On the fourth day she reentered the hospital in great pain, vomiting, and in a condition of shock. Her bowels had not moved since she left the hospital. The abdomen at this time showed moderate distention, and a sausage shaped mass could be palpated below and to the right of the umbilicus. The mass could be moved though such manipulation caused exquisite pain. A diagnosis of intussusception was made. Intravenous fluids were given and an immediate laparotomy performed.

Operation.—Exploration revealed an intussusception of the ileum about 18 inches above the ileocecal junction. The bowel was telescoped for a distance of 7 inches. When reduced, there was found at what had been the apex of the intussusceptum, an intraluminar mass completely filling the bowel. The mass could be moved within the lumen causing a dimpling of the wall. The bowel was edematous and dark in color. Fearing that the growth was malignant, we resected 8 cm. of the ileum and united the ends by lateral anastomosis. The wound was closed without drainage.

Pathological examination as reported by Dr. Murray Stone: Gross pathology, 8 cm. of small intestine with slightly rough and dull appearing peritoneum and containing a large globular mass. The intestine is opened and discloses rounded firm purplish mass 2 cm. by 3 cm. and attached by a 2½ cm. base to the wall of the gut opposite the attachment of the mesentery. The surface of the growth is smooth over the two thirds of the free surface. The remainder appears to be covered with mucous membrane so that the specimen has the appearance of the growth extruding itself through the mucosa and into the lumen.

Micro-section shows wall of small intestine with a neoplasm springing from the submucosa. It has grown toward the lumen leaving the muscularis unchanged and compressing and finally penetrating the mucosa. The growth is of loose texture and composed of fibroblasts with nuclei of varying size. Blood vessels are quite numerous and also of varying size. The growth bears round cells and eosinophils. Neither at the base nor where it penetrates the mucosa does it appear to be encapsulated.

Pathological diagnosis, fibroma.

Postoperative Progress.—The first four days were stormy due to distention, gas pains and vomiting. Thereafter she progressed satisfactorily and left the hospital on the fourteenth day.

Follow-up Notes.—The patient is now well and free from symptoms.

Case 2. *Complaint and History.*—Mrs. M. Y., housewife, aged 38, came under our observation October 24, 1933, when she was admitted to the Springfield Baptist Hospital. She had been suffering acute abdominal pain for about 48 hours accompanied by persistent vomiting. All attempts to move the bowels had been unsuccessful. She had always been well until the birth of her seventh child the preceding year. This had been a difficult forceps delivery and since that time she had been bothered with pelvic discomfort and occasional pains in the left lower abdomen. These symptoms however had not been severe enough to cause her to seek medical aid.

The present illness began suddenly two days before

her admission to the hospital with severe, cutting, spasmodic pain low in the midabdomen and radiating to the epigastrium. It was accompanied by a great deal of vomiting but not much nausea. She was seen by her physician on the following day at which time her temperature was normal, pulse 62. There was no abdominal distention but she was still having the paroxysmal attacks of pain. Hospitalization was refused until the following evening. At this time her temperature was 98.6, pulse 64, and the severity of the pains had decreased.

Examination.—Nothing of significance was found except a tumor mass to the left of the umbilicus which was movable but too tender to outline its exact size. By pelvic examination it could be determined that the mass was not connected with the womb, but because of pain adnexal attachment could not be ruled out. There was no leukocytosis and no appreciable distention although there had been no bowel movement since the onset. During the night the vomiting became fecal in type, the pulse increased to 120 and it was quite definite that we were dealing with an intestinal obstruction.

Operation.—Laparotomy revealed an intussusception about 3½ feet above the ileocecal junction. On reduction, there was found what appeared to be a growth within and completely filling the lumen of the bowel. Because of the similarity to case 1 we decided not to resect the bowel but to excise the tumor. This was done by an elliptical incision placed longitudinally around the base of the tumor. The bowel was sutured in the usual way and the abdomen closed without drainage.

Pathological examination as reported by Dr. Murray Stone: Gross pathology showed a firm elastic rounded tumor 4 cm. by 3 cm. and showing a broad low pedicle 2 cm. in diameter. The mass is purplish in color. On gross section it is yellowish, translucent and with a white opaque rim 0.5 to 5 mm. thick, evidently the stretched out mucosa.

Microscopically the growth is composed of very loose connective tissue containing fibroblasts, numerous eosinophils, round cells and many blood vessels. It is covered with an edematous, hemorrhagic intestinal mucosa and appears to spring from the submucosa.

Pathological diagnosis, fibroma.

Postoperative Progress.—Convalescence was exceptionally quiet with no distention and no vomiting. The patient was discharged from the hospital on the eleventh day.

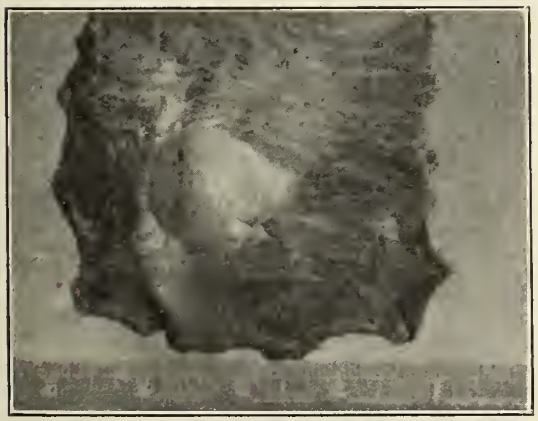

Fig. 1. Fibroma of intestine. The growth has penetrated the mucosa.

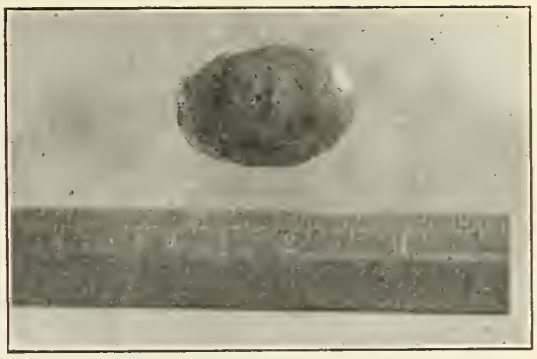

Fig. 2. Fibroma of intestine after removal.

Follow-up Notes. Three months later the patient reported back in good health.

Tumors of the gastro-intestinal tract are fairly common but approximately 90 per cent[1] of them are found in the stomach, colon or rectum. Probably less than 5 per cent of the malignant growths occur in the small intestine but 20 to 25 per cent of the benign tumors of the digestive tract are found in the small bowel. Reported cases of tumors of the small intestine are comparatively rare and reported cases of fibromas are among the rarest of these rare tumors. Dewis[2] in 1906 was the first to make a survey of the literature concerning these tumors and he was able to find record of only four fibromata. King[3] made a similar search in 1917 and found record of ten, reporting one himself. In 1927 Clifton and Landry[4] were able to find thirty-two case reports of tumors that were either pure fibromas or were composed principally of fibromatous tissue. They also reported one case. Last year Moore and Schmeisser[5] found reports of forty-two cases and they too reported one. We found record[6] of one other case not mentioned by these authors. With each decade since 1900 there has been an increased number of cases of tumors of the small intestine reported and an increase in the number of fibromata. It is not probable that these increased case reports mean that there is an increase in the occurrence of these growths but it is probably due to an increased enthusiasm for reporting the rare and unusual in medicine.

Fibromata may arise from the fibrous tissue of the subserosa producing an extraluminar tumor, or from the submucosa producing an intraluminar growth. They may vary in size from that of a pea to the size of a baby's head, the extraluminar tumors producing the larger growths. As is the case with fibromas elsewhere these benign intes-

tinal tumors are usually firm, fairly smooth and are round or oval in shape. Microscopically they show a hyperplasia and hypertrophy of fibrous tissue, fibroblasts, spindle-shaped cells, a varying number of round cells and may or may not have areas of myxomatous degeneration.

The lower ileum is the most common site for tumors of the small intestine, the duodenum being next in frequency and the jejunum being relatively free. Carcinomas occur a little oftener in the duodenum than in the ileum and very seldom in the jejunum. The malignant tumors are usually larger, tend to infiltrate the bowel wall and encircle it, while the benign tumors are not so likely to invade the wall of the bowel but assume the polypoid type. Any histological type however may become polypoid, hence it is not safe to infer that all intestinal polyps are benign. A microscopic examination is necessary to reveal the real character of the growth.

Symptoms produced by fibromas of the small intestine are as a rule similar to symptoms produced by other benign tumors of the same location. If the growth is extraluminar it may reach a considerable size before it is noticed or before it may produce any subjective symptoms. The intraluminar tumors however may produce symptoms relatively early; often before they occlude the lumen of the bowel. Some may remain

Fig. 3. Photomicrograph of section made near base of tumor showing fibroblasts invading muscular coat of intestine. (Case 1.)

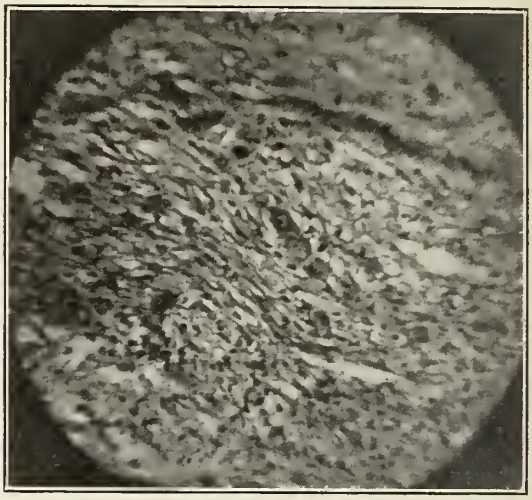

Fig. 4. Photomicrograph of case 2.

asymptomatic and be found only at necropsy, others may remain asymptomatic and quite suddenly produce symptoms of an acute obstruction, while others may produce vague intestinal disturbances over a considerable period of time.

In the duodenum the common symptoms produced by benign tumors are epigastric pain, cramping, nausea, distention, and if erosion of the mucosa occurs there may be symptoms identical with ulcer, including hemorrhage. When the tumor becomes sufficiently large to produce complete obstruction the symptoms are essentially the same as those produced by other lesions that have caused duodenal block. The pain, tenderness, nausea and vomiting may at times simulate gallbladder disease; and if the tumor is in the region of the ampulla of Vater jaundice may occur.

Tumors of the jejunum and ileum produce symptoms in keeping with partial or complete obstruction of this part of the bowel and about three fourths of the reported cases of fibromas produced intussusception. Before intussusception occurs there may have been, over a varying period of time, attacks of colicky pains accompanied by nausea, a feeling of abdominal distention or even sharp, shooting pains. These pains often start from the same place and follow a fairly definite course in the abdomen. Diarrhea, hemorrhage, loss of appetite and general malaise may also be present.

With the onset of intussusception the pain is sudden and severe, usually in the lower abdomen, with vomiting ensuing immediately. Spontaneous reduction of the intussusception may occur and the symptoms

subside but this is not likely. Distention usually comes on gradually but may not be so marked as in other types of acute obstruction. Shock is a constant feature but it may not appear early and may abate after it has appeared. Visible peristalsis may often be seen, and tenesmus may occur. After the acute symptoms have subsided the typical sausage shaped mass is sometimes palpable.

Until there is considerable occlusion a diagnosis of benign tumor of the small bowel is impossible. With partial or complete occlusion the clinical and roentgen ray findings are those of mechanical obstruction. The roentgen ray may show the dilatation of the bowel above the lesion but at this time we are not able to differentiate the obstruction due to a benign tumor of the bowel from obstruction due to adhesions, bands or malignant growths. After occlusion is diagnosed, operation is required to determine the cause of the obstruction.

Treatment of uncomplicated cases of fibromata requires only enterotomy and removal of the tumor with its base. If an unreducible intussusception is present or gangrene has developed, resection of the bowel is necessary. The mortality rate after enterotomy is low but after resection the rate increases, being greatest in the group that develop gangrene before operation.

Although tumors of the small bowel are not common when compared with other intra-abdominal conditions yet they occur sufficiently often for them to be considered in any patient who has colicky pains, nausea, hemorrhage, or diarrhea that cannot be explained by a thorough study of the stomach, colon and rectum. During roentgen ray examinations of the digestive tract, pathological conditions of the small intestine should be given the same study as is usually given the stomach and colon. During exploratory operations, where digestive symptoms have been a predominating feature, intraluminar tumors should be remembered.

SUMMARY

1. Two cases of fibromata of the ileum are reported.

2. A study of considerable literature was made and forty-four similar case reports were found.

3. Intussusception is the most common known complication of these tumors.

4. There is often a history of pain, nausea, distention or hemorrhage over a varying period before intussusception occurs.

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OPERATIVE TREATMENT OF ESOPHAGEAL DIVERTICULA

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There are two types of esophageal diverticula, viz.: (1) Those occurring at the extreme upper end of the esophagus on the posterior surface at its junction with the posterior wall of the pharynx. (2) Those occurring below this point, usually at the level of the bifurcation of the trachea and on the anterior surface of the esophagus.

The second type is rare and is usually caused by fibrosing tuberculous glands which exert traction on the wall of the esophagus.

The first type is the one most commonly observed and is caused by pressure within; hence it is called the pulsion type. This paper will be limited to a discussion of this first type.

ETIOLOGY AND PATHOLOGY

The exact etiology of the first type is still open to argument. Some authors give an obstructive lesion in the lower extent of the esophagus as the cause of increased resistance to the passage of the food bolus and increased pressure in the upper segment of the tube with resultant herniation at the weak point on the posterior wall. One of the three cases reported in this paper had a known obstructive lesion at the cardiac orifice of the esophagus for over twenty-five years.

Chevilier Jackson believes that a spastic contraction of the crico pharyngeus muscle acts as a pinch cock preventing the passage of the bolus of food and the resultant pressure causes herniation through the posterior esophageal-pharyngeal wall.

The sacs of these diverticula are composed of two layers, (1) the mucosa, (2) the submucosa. The muscle layer is not present as in traction diverticula.

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

SYMPTOMS

The chief primary symptom in these three cases of course was regurgitation of food after swallowing. Another symptom of which these three patients complained was the constant presence of a large amount of saliva in the mouth over a long period of time. It is the writer's opinion that this symptom occurs early and that patients with this complaint should be investigated for the presence of this lesion before the sac becomes large enough to hold and regurgitate food. Other symptoms include loss of weight and typical gurgling noise on eating, speaking or on pressure over the sac. Chronic cough due to repeated regurgitation of food into the upper trachea is frequently observed. Most cases are diagnosed in people past 50 years of age. The three patients reported in this paper were all over 60 years.

DIAGNOSIS

A careful roentgen ray is the surest means of diagnosis to determine the presence, exact location and extent of the sac. Esophagoscopy may also be used especially in the differential diagnosis from other lesions of the upper esophagus, such as stricture or carcinoma.

A large aneurysm of the aortic arch may be the cause of esophageal obstruction; in these cases instrumentation before roentgen ray is fraught with certain risks.

TREATMENT

The treatment in the great majority of these cases is surgical removal. The anesthesia of choice is entirely local and with efficient preoperative medication no other anesthetic is necessary. In the writer's opinion this is an important factor in reducing the operative mortality as these patients are mostly in the fifth and sixth decades of life.

Careful preparation should be given these older age groups. Their kidney function and the condition of their cardiovascular system must be carefully estimated. Dehydration and any unbalanced chemical condition should be corrected.

In the hands of the average surgeon the two stage operation first advocated by Goldman and later popularized in this country by Murphy, C. H. Mayo, Judd and Lahey, is much to be preferred.

Some operators use the one stage excision in small diverticula or invert the sac in these cases. The danger from these one stage procedures especially in the case of a large sac lies in contamination of the mediastinum with resultant mortality from acute mediastinitis. The two stage operation eliminates this danger providing one does not open the sac in the first stage.

Incision is made along the anterior border of the sternocleidomastoid muscle and the skin and platysma are incised using sharp dissection or the electric knife. The prethyroid muscles are dissected medialward and the lateral border of the thyroid gland is exposed. The omohyoid may be cut or retracted upward. This exposes the middle thyroid veins which are clamped and divided. The thyroid gland is then retracted medialward and the carotid sheath is drawn to the side with blunt retraction.

The diverticular sac may now be exposed posteriorly and laterally to the esophagus. In difficult cases Chevalier Jackson has used an esophagoscope within the sac to outline it for the surgeon. Most writers agree, however, that this is not necessary in the majority of cases. The sac is then dissected from its fibrous attachments and brought up into the incision, care being taken not to rupture it. When it has been completely freed and the neck isolated, the patient is given fluid to swallow and if the fundus is held higher than the neck of the sac and the esophagus has not been kinked by too great traction the fluid will readily pass down the esophagus and not regurgitate into the sac.

Some authors have advocated the passage of stomach or duodenal tubes at this stage to insure patency of the lumen of the esophagus. Of course this would be indicated under general anesthesia, but one might find that he still had an obstruction due to kinking when he withdrew the semirigid tube that served to keep the lumen patent. This would not obtain with the method described under local anesthesia. In case of obstruction the patient has no difficulty in coughing back the small sip of test fluid.

The sac is fixed by shallow sutures which do not penetrate through the wall of the sac. If the sac is large it is fixed outside the skin. If small it may be fixed to the adjacent muscles. The wound is closed in layers around the sac and a dressing of sterile vaseline gauze applied. This completes the first stage.

The patient is kept at rest for from eight to twelve days and then the second stage is performed. By this time adhesions have formed closing off the mediastinal space. The second stage is also done under local infiltration anesthesia although very little is required.

The sac is transfixed and ligated with No. 1 chromic catgut and a purse-string suture of the same material is placed below the ligation suture. The sac is then excised with the electric knife and inverted by the purse-string suture.

A small rubber tissue drain is placed in the

wound as it is closed. The drain is removed in 48 hours and the writer's cases have healed in two weeks.

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ALUM-PRECIPITATED DIPHTHERIA TOXOID: RAPIDITY OF IMMUNIZATION FOLLOWING ONE DOSE

The results that A. E. Keller and W. S. Leathers, Nashville, Tenn. (Journal A. M. A., Aug. 18, 1934), obtained following the injection of one dose of 1 cc. of alum-precipitated diphtheria toxoid indicate that immunity to diphtheria may be produced rapidly. In one group of twenty-three Schick positive children, 60 per cent were Schick negative in fourteen days. In the same group, 95.6 per cent were Schick negative in twenty-eight days and 100 per cent in forty-two days after the injection. In another group of fifty-three children, 92.4 per cent were Schick negative twenty-two days after receiving one injection of alum-precipitated diphtheria toxoid, 94.3 per cent were negative in sixty days, and 96.2 per cent were negative in ninety days after immunization. The results following immunization with a single dose of alum-precipitated diphtheria toxoid compare favorably with those obtained following two doses of toxoid without alum or toxoid with alum and are much better than those reported following one dose of toxoid without alum and with alum or three injections of standard diphtheria toxin-antitoxin mixture.

WHAT SHALL WE TEACH REGARDING CHRONIC APPENDICITIS?

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The last two decades have been marked by much contention concerning chronic appendicitis. Watkins[9] in 1932 in a well written paper called attention to 662 papers on the subject that had been published up to that time. A review of the literature shows that during these years three moods have prevailed in professional discussions. The first was one of disappointment and pessimism regarding results obtained in efforts to relieve right lower abdominal pain by appendectomy in chronic cases. Then came a spirit of contention against the whole idea of chronic appendicitis, the argument being urged that results were not obtained because surgeons were operating for a condition that did not exist. Now a modulated attitude of conciliation, caution and warning is becoming manifest. The profession is being urged to act with more precision and less dogma; more breadth of comprehension and less speed in arriving at conclusions; more eagerness to work out a correct diagnosis and less zeal to operate. Illustrative of the present attitude I cite the following:

Urban Maes, et al.[1] who have recently (1934) written striking articles on appendicitis both in childhood and in those of advanced years, are now reminding us of the words of Bastianelli who said, "When physicians are discussing whether or not the case is appendicitis, it is. When they are inclined to admit the possibility of appendicitis without being perfectly sure of it, it not only is but it is about to perforate. When the diagnosis is sure there is already perforation, with more or less circumscribed peritonitis."

Miller[11] of Pennsylvania University, who in 1932 wrote convincingly regarding appendiceal conditions said, "I believe the present outcry in the profession against the removal of the so-called chronic appendix is a step backwards."

Lahey[10] (1932) suggests that we are suffering from being conscience-minded because we have removed appendices without fruitage and are now swinging to the other extreme and leaving appendices in that are endangering our patients.

In view of the broad surgical experience and scholarly attainment of such leaders in the profession it seems fitting that we ask

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ourselves, what shall we now teach regarding this much discussed condition called "chronic appendicitis" of which Saltzstein[25] (1933) has said, "Statistics can easily be obtained, showing that to operate or not to operate, is indeed a major problem." It seems but fair that some attitude be stated which should be helpful to the average members of the profession, if not indeed to the extreme opponents and proponents of the question.

Therefore, I believe that the following may be taught, especially to the younger members of the profession, with less danger of misguidance than to cling to either extreme of the prevailing arguments, viz.:

I. Let it be taught that there is such an entity as chronic appendicitis. There may be much contention regarding what the pathologists see in the microscope. Certainly at least the accounts do not prompt us to believe that the microscopists are much more in agreement than are the surgeons on the question. However, while the microscopist concedes that the task is not as simple in the case of the appendix as in certain other structures, no less authority than Boyd[28] describes both the gross and microscopic pathology of chronic appendicitis saying, "the condition may be the sequel of one or more acute attacks. More often, however, it comes on insidiously."

That there is a pathological entity known as chronic appendicitis is supported by three facts, viz.:

Fig 1. Mucocele of appendix, 3 cm. in diameter.

(a) Competent surgical authorities believe in it. It may be recalled that Howard Kelly[12] in his masterful work on the vermiform appendix gives considerable space to this subject. Among the recent writers should be mentioned John B. Deaver,[16] Royster,[16] George Miller,[11] Sloan,[13] Barber and C. W. Mayo,[18] Saltzstein,[25] Major Makel,[2] Critchlow,[3] Jung and Hsieh,[6] Watkins,[9] Clute,[10] Lahey,[10] Horsley,[27] Murphy of Canada[22] and Ortner of Vienna.[26] Whether we are in agreement with them or not, it does not appear logical that we should utterly ignore the experience and intelligence of such men.

(b) The gross findings in and about the appendix support the diagnosis. It should not be overlooked that the appendix is often bound down with adhesions, bands and membranes; is kinked, constricted, atrophied or fibrosed; or, it may contain foreign bodies, mucous, fecaliths or calcified bodies, abnormal in kind or amount, and bacteria of many kinds which become active on every provocation. Professor Wilkie[19] of Edinborough has recently gone on record as believing that foreign bodies such as fecaliths, dormant in an appendix may fall back against an impassable kink or stricture and produce what he calls "obstructive appendicitis" which, like intestinal obstruction, quickly results in gangrene, rupture and peritonitis, in which event, he says "well over 90 per cent of the deaths" result. Such apparently innocent factors may quickly become serious. A study of 300 cases of acute appendicitis was once made by the writer to determine what the antecedent history was in cases which go to abscess, perforation and gangrene, and it was found that over 63 per cent had previously had mild attacks chronic in nature but not considered serious, ranging in duration from one month to ten years. Such observations support the contention held also by Boyd[28] that often "acute inflammation occurs in an appendix already weakened by chronic inflammation."

It is not a far stretch of imagination to believe that these gross findings may be evidences of both previous and present inflammation. In fact it is hard to believe that such structures may long exist without irritation secondary to which inflammation would naturally result. It does not appear necessary to speculate on whether such inflammation is primary or secondary. There is much experience and intelligence in the profession

which side with the feeling that it is "splitting hairs" to spend our time speculating on whether chronic inflammation must precede, result from, or be entirely independent of acute attacks of appendicitis.

(c) Convincing statistics showing that patients having chronic appendicitis were completely relieved by appendectomy only seem to establish the correctness of the diagnosis. Let us apply this acid test of Makel[2] to the idea of whether there is such a thing as "chronic appendicitis." He says, "The only definite proof of chronic appendicitis from a clinical standpoint is the complete relief afforded following therapeutic appendectomy." His logic is convincing.

Deaver and Ravdin, accepted and quoted recently (1927) by Royster,[16] found in a follow-up that the end results in 500 cases operated on for chronic appendicitis were as follows: 83.1 per cent entirely relieved; 9.7 per cent partly cured, and 7.2 per cent unrelieved.

Mayo[18] (1934) feels that they have justified "exploration of the abdomen" although "no further procedure than removal of the appendix was done." One hundred replies were received to questionnaires "after at least five years of interval following exploration and appendectomy." The data show 60 per cent were completely cured by operation, and 14 per cent were helped. This makes a total of 74 per cent who would have remained unaided had there been no willingness to accept a "chronically inflamed appendix" as a working diagnosis.

II. Let us teach, and let us honestly confess, that too many appendectomies have indiscriminately been done. This has been the cause of our chagrin. Critics among the laity and in the profession have a real case against us in this respect, and stupid are we indeed if we do not profit by our blunders and if we do not warn our successors of our pitfalls.

III. Let us teach that the diagnosis of "chronic appendicitis" may be accepted as a working basis by a process of exclusion but never by snap judgment based on pain in the appendiceal region.

The trouble in the past has been that pain in the right lower abdominal quadrant has been accepted too readily as an excuse for operation. Royster[16] in his monograph (1927) on appendicitis calls attention to nine conditions which may mislead the undiscerning operator who is too lazy or too indifferent to work out a diagnosis, while Sloan[13] records twenty-seven and Ortner[26] of Vienna seventy-five conditions which produce abdominal pain many of which if not all may at times cause the sufferer to direct his doctor's attention to the right lower abdominal quadrant. Pain is no pathognomonic sign of appendicitis if such a sign there ever is. We recall that a professor once paraphrased the Scriptures to his class saying that "a lazy and undiscerning generation shall seek a pathognomonic sign, but unto such no sign shall be given."

While it is true that appendicitis is the most common cause of right lower abdominal pain it may also, even in patients of appendiceal years, be due to inflammation, infection, ulceration, neoplasm, impaction and obstruction of the cecum to which the appendix is attached; perforation, kink, intussusception, Meckel's diverticulum and volvular lesions of the terminal ileum, may misguide the careless; perforation of peptic ulcers, perforation of the gall bladder due to pressure of large stones, and perforation of the cecum due to its impingement against the pelvic bones have all led to the liberation of irritating fluids which trickle into the right lower abdomen, thus producing pain in the appendiceal region instead of at the site of the primary lesion.

The right ureter with its inflammations, kinks, strictures, stones, diverticula, purulent or blood clot obstructions may require in fairness that we go beyond the usual physical examination. Roentgen rays of the kidney, ureter and bladder, intravenous urograms, or cystoscopy, any one or all may be required to unravel the cause of pain in the appendiceal region for which the appendix is not to blame.

The only avenue of safety for our patients and our reputations will be by extensive differentiation and diagnosis by exclusion. Our trouble in the past has been one of diagnosis, not one of surgery. We have indulged ourselves too much in postoperative lamen-

Fig. 2. Roentgen ray of appendix after removal. Appendix long, irregular in caliber, appendolith; Jackson's membrane.

tation and too little in preoperative perspiration.

The columnist in the daily paper may jokingly tell the public that a "squint-eyed school boy" after a couple of hours instruction may learn how to remove a chronic appendix as well as anybody, but it may be observed that the leaders of our medical education have not always in four years been able to teach earnest and capable college youths how unerringly to diagnose it. Neither is the removal of the appendix nor the diagnosis of its various maladies as simple in all its possibilities as may appear to one who seldom if ever encounters the problem.

Once the writer heard Dr. Crile say to a group of visitors in his clinic, "Gentlemen, I have removed over six thousand appendices, but I confess to you that that little bit of anatomy still has me 'locoed' more than anything in the human body. I am constantly blaming it for what I later find it is not to be blamed for, and am often excusing it for what I later find it is at fault for." The task to the man who faces his work conscientiously is never trivial.

IV. Let us teach that surgeons should not decline to operate for chronic appendicitis. If the patient has been carefully studied and examined; if no other diagnosis can be established to explain the symptoms; if pain or soreness, especially subsequent to a previous attack, is demonstrable to finger point pressure over the caput coli by the aid of the fluoroscope and persists in any annoying or disabling degree in a patient who has indigestion, spastic constipation, and discernible gas in the cecum as elicited by Lockwood's sign,[27] the burden of proof regarding appendectomy is squarely up to the surgeon, whether there be fever, leukocytosis and vomiting or not. As long as some surgeons are obtaining relief for from 60 per cent[18] to 83 per cent[16] and even 90 per cent[25] of their patients, as we have quoted, on a diagnosis of chronic appendicitis for whom appendectomy only is done, we do not feel like excusing ourselves in doing nothing.

Let it be emphasized also that in the execution of this program there is trouble for any surgeon and danger for the casual operator if precision and precaution are not exercised in carrying out the program of diagnostic approach and surgical care of patients who have chronic appendicitis. A clear and thorough procedure must be in mind and be followed. So helpfully has Gibson[25] summarized the problem for the surgeon that we can do no better than second his advice which, in brief, is as follows:

1. Take a detailed history.
2. Make a careful physical examination.
3. Exercise excessive care in advising operations.
4. Make a careful search at operation for other lesions.
5. Avoid operations on neurosthenics and

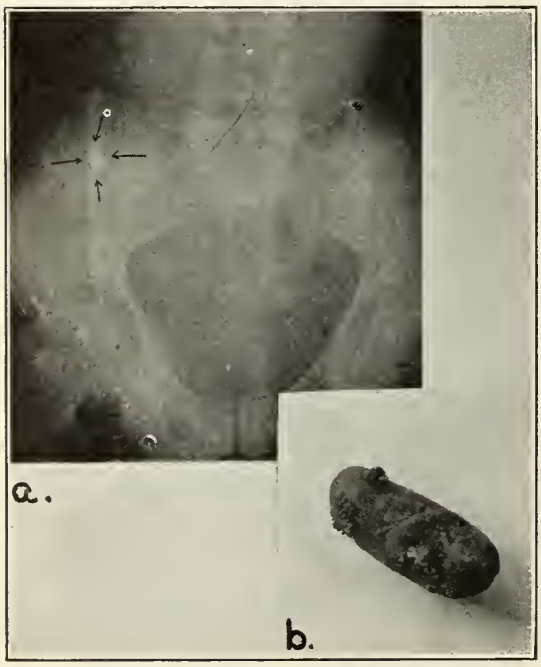

Fig. 3. a. Appendolith (roentgen ray). b. Stone after appendectomy photographed in actual size.

Fig. 4. Rectograde pylogram by Dr. Max Goldman. Ureteral colic. Diagnosed at receiving ward as appendicitis.

patients who have extensive operative histories.

6. Use restraint if there have been no definite attacks.

7. Make a free incision and do a careful exploration.

Miller[11] recently (1932) has said that "a campaign of instruction of the public regarding appendicitis is more important than a campaign against cancer." It seems fair to say that such a campaign should be directed to the laity regarding acute appendicitis, but a like campaign is needed for the profession regarding chronic appendicitis.

SUMMARY

1. The more recent literature, especially that of the last five years, on chronic appendicitis indicates a growing opinion that there is such a malady, that it is more prevalent, more dangerous and is more frequently overlooked than has been previously taught.

2. Indications are that the failures of the past have been largely due to a lack of diagnostic thoroughness.

3. Certain medical centers have published statistics showing that from 60 per cent to 90 per cent of their patients who had operation for chronic appendicitis were completely relieved by appendectomy only.

4. For such reasons, though there are many valuable and highly esteemed opinions which have been expressed to the contrary, it seems that there should be a restatement of our teachings on the subject and the following are offered as principles which, in part, should now be taught, viz.:

(a) That there is such a pathological entity as chronic appendicitis.

(b) That too many appendectomies have been done in the past without adequate preoperative diagnostic study. This neglect has brought disappointment to the patients and chagrin to the profession.

(c) That the diagnosis of chronic appendicitis is not simple and must be based on a broader and more comprehensive consideration of many conditions which must be differentiated from chronic inflammation of the appendix.

(d) That surgeons should not decline to remove a chronically inflamed appendix if it is producing annoying or disabling symptoms and if the diagnosis has been well established by a thorough diagnostic program.

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DISCUSSION

DR W. T. COUGHLIN, St. Louis: I have enjoyed the paper of Dr. Myers but the time was all too short to learn what he might still further have said about the chronic appendix. There is such a thing as chronic appendicitis but the appendix which at present does not show signs of inflammation and in which the microscopist can find no stricture, provided of course the operator in removing the appendix has not destroyed the stricture by the application of his forceps, is not a chronic appendix. Any appendix that has been inflamed will probably show some signs of this inflammation. Any hollow organ that has had a lesion in its walls for years will probably in consequence show some signs of stricture at that point. The current in the appendix is more out than in. There is secretion from the mucous glands that we do not think about. The entrance of poisons into the appendix is an incidental matter, but the poisons have to come out as well as mucus so the current is more out than in. If there is stricture in the appendix it gets angry and tries to overcome the stricture and consequently shows certain changes in the wall and that going on from time to time may be called chronic appendicitis.

What is chronic disease? Chronic disease is that which usually lasts for more than eight to ten weeks. It is acute for three or four weeks, subacute for three or four more and after that it may well be termed chronic; and if an appendix having been afflicted with acute attacks and as a consequence of such attacks becomes subject to the changes I have mentioned, that is

a chronic appendix. As a consequence of appendicitis the circulation in the walls becomes interfered with; as a result of that nature throws out adhesions. If an appendix cannot function properly to get rid of its secretions, that appendix can with all propriety be called a chronic appendix, unless of course it is afflicted by tuberculosis which is a chronic disease; or unless it is afflicted by syphilis, a thing recognized almost never. These are chronic diseases, and such an appendix will show by its appearance at operation that it is pathologic.

In relapsing appendicitis the patient who has had repeated attacks may, I think in all propriety, be said to have between his attacks a chronicity of his disease because after his first attack he probably has some changes in his appendix that, while not interfering with the proper functioning of that organ, will interfere with the normal structure of the wall of that appendix which will be shown by certain infiltration. Patients whose appendices have been removed without any gross signs sometimes have had a lymphocytosis in the wall, and that will probably and properly be called a chronic appendix. An appendix once having had a slight attack of appendicitis may become chronically subject to interference with its function and so is a chronic appendix liable at any time to a fulminating attack of acute appendicitis.

These are the things we all teach regarding the appendix, and these are only some of them. To everything the doctor has said I think the teaching faculty here, there and everywhere will probably say, "Amen."

CEREBRAL PARALYSIS IN CHILDHOOD

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Cerebral paralysis is often used synonymously with meningeal hemorrhage and Little's disease. This lesion is not infrequent and is of great importance not only from its immediate effect but because many of the cerebral paralyses seen in later life depend on it. It is estimated that one third of the deaths of infants which occur during parturition is due to this cause. Cerebral paralysis may be divided into three groups; namely, (1) paralysis of intra-uterine origin, (2) birth paralysis, and (3) acute acquired paralysis.

Paralysis of intra-uterine origin is the least frequent. In such cases there is some congenital defect in the brain due sometimes to arrest of development, at other times to such intra-uterine lesions as hemorrhage or thrombosis. The origin of this condition is for the most part unknown.

Birth paralysis—cerebral birth paralysis—is due in nearly all cases to meningeal hemorrhage. Recognition of the condition after birth is very important. The symptoms depend on whether the lesion is above or below the tentorium cerebelli. If above, the child may be born asphyxiated or cyanosis may not appear until several days later. In addition, the child will be restless and cross, will refuse to nurse and within a few days may have convulsions sometimes confined to one side. Examination may show a tense or bulging anterior fontanel associated with muscular rigidity, subconjunctival hemorrhage, irregularity of the pupils, nystagmus and a slow pulse.

If the lesion is below the tentorium cerebelli, there will also be asphyxiation which may not be marked until after several days when the nerves at the base of the brain having to do with respiration become involved. At this time there will be irregular and labored breathing. Tension of the fontanel is not so great, at least during the first few days, as when the hemorrhage is supratentorial. Muscular rigidity and retraction of the head may be present. In the presence of any combination of the previously mentioned symptoms, a lumbar puncture should be done. If hemorrhage has occurred, a bloody cerebrospinal fluid under increased pressure will be obtained. Asphyxia and convulsions occurring within a few days after birth are an indication for the immediate performance of this procedure.

If the child survives, some of the following symptoms will develop: Weakness and rigidity of either the arm or leg of one side (hemiplegia), of both legs or both arms (paraplegia). Rarely these symptoms may be confined to one limb (monoplegia). The tendon jerks (Achilles, knee, biceps and triceps) of the affected limbs will be increased and ankle clonus is often present. In cases in which the spasticity is very great, these reflexes may be apparently diminished. This is due to the fact that the muscles are so hypertonic that they are unable to contract. The Babinski reflex will be present in children under two years, which is normal for that age. In the course of some months, deformity occurs in the affected limbs due to the overaction of the flexor muscles which, in time, causes more or less ankylosis. If the patient can walk the gait is more or less spastic. Sometimes the overaction of the adductors is so great as to cause the legs to be crossed. In this connection it must be remembered that in some instances actual weakness is not marked and the disability is due to the intense spasticity. If only one side is affected, the gait is of the hemiplegic type and the affected limbs are frequently smaller than those of the other side. The limbs are often cold and cyanotic.

In many of these cases there are present involuntary, slow, vermicular movements,

especially of the hands and fingers and, sometimes, of the feet, toes and facial muscles. They may be present only when excited by movements of the limbs. These are known as athetoid movements and the condition as athetosis. Sometimes these movements more closely resemble chorea. Clonic spasms of the arm muscles may also occur. If, as is sometimes the case, there has been considerable return of power and very little muscular rigidity, these movements may be mistaken for those of Sydenham's chorea. Weakness of the ocular muscles and nystagmus may be observed. A very serious feature is the frequent occurrence of mental impairment and epileptiform convulsions which, if the lesion is unilateral, may be jacksonian in type.

While it is well known that the acute acquired type of cerebral apoplexy is of common occurrence after 50 years of age, it does not seem to be generally known that it is exceedingly common during the first decade of life. Statistics collected by Thomas show that nearly as many cases occur during the first decade of life as in the fifth and sixth. The reason is that any of the acute febrile diseases may cause degeneration of the blood vessels and brain substance. The usual history is the occurrence of diphtheria, scarlet fever, measles, whooping cough, influenza or some other infectious disease. Either during the progress of the disease or while convalescent the child is seized with convulsions and is unconscious for a period of time. In some cases this may be preceded by headache and muscular rigidity and retraction of the head. When the latter occurs the lesion is probably encephalitis. If the child survives, after consciousness returns it will usually be found to be hemiplegic. In these cases hemiplegia is the usual result, while in cases due to abnormal birth or to intra-uterine disease diplegia or paraplegia is more common.

As the patient grows the paralyzed side may not develop to the same extent as the normal, the limbs may be shorter and the muscles smaller. Epilepsy, imbecility and idiocy are frequent results of these lesions.

PATHOLOGY

In the cases due to injury at birth, the immediate result is hemorrhage. This is usually either subdural or intrameningeal. In locality it may be either at the convexity or the base. Less frequently it may be in the brain substance or within the ventricles; minute hemorrhages may be scattered through the brain. Meningeal hemorrhage, if over the convexity, is caused by the overlapping of the parietal bones, which occurs during the process of molding the fetal head, which tears the meningeal veins just before they enter the superior longitudinal sinus. The tentorium is often torn. The hemorrhage, with the resulting clot is pronounced over the motor region of one or both sides. If it involves the parietal area, the ataxia type will result; if the frontal lobes, the astasic-atomic type will result. Thrombosis in the superior longitudinal sinus may also be found and more or less softening of the cerebral cortex occurs as a result of the interference with the circulation which results in degeneration of cortical nerve cells. Hemorrhage at the base of the brain is caused by similar tearing of the veins entering the lateral sinuses, which at times may also be ruptured. It is possible that the cerebellar type may be due to such a lesion. The lesions found at autopsy are: (1) Small cavities in the brain cortex communicating with the arachnoid spaces and penetrating deeply into the brain, and may extend into the ventricles; (2) dimunition in the size of the convolutions; (3) unilateral or bilateral atrophy of the brain due to diffuse sclerosis; (4) cysts in the cortex or meninges which may have hemorrhagic contents.

In the cases due to intra-uterine disease or trauma sustained by the mother during the intra-uterine life of the child, the condition found will, of course, depend upon the cause. In many instances nothing characteristic will be found the appearance resembling the terminal lesions found after a meningeal hemorrhage. If due to hereditary syphilis we may find disease of the blood vessels, gummatous infiltration and chronic inflammation of the meninges or isolated gummata if death occurs early. When due to intra-uterine disease or diseases in the mother, as typhoid fever or other febrile diseases, encephalitis is usually found.

DIAGNOSIS

While asphyxia with cyanosis of the head and convulsions followed by coma occurring in a recently born child are very significant of meningeal hemorrhage, it must be borne in mind that asphyxia occurring after birth may be due to other causes. The most important causes are disturbance of the placental circulation, interference with the cord as under pressure, feebleness of the child, premature birth, malformation of the respiratory or circulatory organs, disease of the lungs, as atelectasis, pneumonia, and syphilis.

DIFFERENTIAL DIAGNOSIS

1. Multiple sclerosis although it may present somewhat similar symptoms does not develop until several years after birth.

2. Hydrocephalus also is a cause of spastic paralysis in early life but the peculiar shape of the head will distinguish the condition from hemorrhage.

3. Progressive lenticular degeneration (commonly known as Wilson's disease) may be confusing especially if it is observed that it did not develop until several years after birth.

4. Rickets may cause muscular rigidity and spasmodic seizures but they are usually transient and do not have any involvement of the pyramidal tract.

5. Multiple neuritis is a comparatively frequent cause of paralysis following infectious disease but in this disease the tendon reflexes of the affected limbs are lost and the Babinski reflex is absent. There will be tenderness over the affected nerve trunks and considerable pain. An exception to this, however, is neuritis following diphtheria, but pain and tenderness are usually absent.

6. Brain tumor affecting the motor centers or tract may cause hemiplegia. This, however, develops gradually and is usually associated with jacksonian attacks, headache and other signs of tumor.

7. Encephalitis either following an infectious disease or the epidemic form must be distinguished from meningitis. In the latter, muscular rigidity and retraction of the head and headaches are usually more pronounced. The cerebrospinal fluid will be cloudy and contain many cells.

TREATMENT

If meningeal hemorrhage is recognized sufficiently early, there are two procedures which hold some hope of relief. Lumbar puncture, which I have also mentioned as a diagnostic aid, is useful as a therapeutic procedure. If signs of undue tension of the fontanel reappear, it should be repeated. This may be done daily for several days if necessary. The coagulation and bleeding time should be taken. In supratentorial hemorrhage, opening the skull and removing the clot has been successful in about 50 per cent of cases operated upon, but the operation must be done within two weeks after birth.

If the condition follows an infectious or febrile disease the treatment is more or less symptomatic. Quiet is very essential. The diet should be liquid. If there is reason to believe that hereditary syphilis may be the cause of course antisyphilitic treatment should be given.

After contractures and deformities have developed orthopedic surgery should be the procedure.

Missouri State School.

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TELANGIECTASIA ASSOCIATED WITH VARICOSE VEINS

H. I. Biegeleisen, New York (Journal A. M. A., June 23, 1934), presents a micromethod of intravascular injection for telangiectasia associated with varicose veins which successfully removes dilated capillaries. The necessary equipment includes: proper illumination, extremely fine metal needles and a powerful binocular loupe. The patient stands on a table so as to distend the capillary loops. No tourniquets are necessary. After the injection of a sclerosing solution is completed, an ordinary gauze pad, held down by adhesive plaster, should be applied. The blood vessels dealt with stand out clearly when magnified by the binocular loupe. They are either true capillaries, capillary venules or small venules. The injection should be started in healthy tissue. The fine needle has been successfully engaged in the capillary, being kept near the skin surface so that it will engage the vessel directly under the epidermis. When the needle has been succssfully ngaged in the capillary, the fluid is injected rapidly, causing the vessels to swell visibly. The sclerosing solution can usually be seen as it displaces the blood in the telangiectatic tubules. Care must be observed to avoid a perivascular injection. This will be evidenced by the formation of a wheal and it is a signal to stop the injection in order to avoid a slough. Quinine should not be used, because it is often followed by pigmentation, which may be more unsightly than the telangiectasis itself. Sodium morrhuate, 5 per cent, may be used, but caution must be observed, since it is occasionally capable of slough production. Any of the other mild sclerosing agents are also satisfactory for this technic. In some cases, a successful treatment is followed by an almost magical disappearance of the capillary groups. This is especially true of spider web formations or similiarly connected clusters of capillaries. In other cases, thromboses will occur and be evidenced by firm dark stripes corresponding to the blood vessels injected. These are easily seen through the thin layer of epidermis covering the thrombotic streaks and are slowly but definitely absorbed in a few weeks.

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SEPTEMBER, 1934

EDITORIALS

MISSOURI PUBLIC HEALTH AND TUBERCULOSIS ASSOCIATIONS TO HOLD JOINT SESSION IN ST. LOUIS

The Missouri Public Health Association and the Missouri Tuberculosis Association will hold their annual sessions jointly in St. Louis, September 19, 20 and 21. All scientific and business sessions will be held in the Jefferson Hotel.

The morning and the afternoon sessions on the first day will be held separately and business of the two organizations will be conducted. In the evening a dinner open to the public will conclude business of the day and round table discussions will follow. Dr. George H. Hoxie, Kansas City, president of the Missouri Tuberculosis Association, will preside at the dinner.

The second day of the session will be devoted to joint scientific meetings of the two organizations. In the morning sessions will be held dealing with "The Problem of Milk" and "Group Teaching." The afternoon session will be on "Child Hygiene."

A luncheon will be held September 20 sponsored by the Mental Hygiene Association and the Parent-Teacher Association cooperating. "Mental Hygiene" will be discussed and Dr. Paul Zentay, St. Louis, will preside. In the evening nurses attending the meeting will have a dinner at the Town Club.

On the last day of the session a general meeting will be held in the morning with Dr. J. F. Bredeck, St. Louis, city health commissioner, presiding, followed by separate meetings for health officers, sanitary officers and public health nurses. The afternoon will be devoted to a general session on communicable diseases at which Dr. E. T. McGaugh, Jefferson City, state commissioner of health, will preside. At noon a luncheon sponsored by the Missouri Social Hygiene Association and the Woman's Auxiliary to the St. Louis Medical Society will be held. Dr. Harriet S. Cory, St. Louis, executive secretary of the Missouri Social Hygiene Association, will preside and a symposium on syphilis will be presented. Speakers will be Drs. Martin F. Engman, Paul Zentay and Richard S. Weiss, St. Louis.

On the last evening the Missouri Child Health Council will hold a dinner meeting. Dr. H. S. Gove, Jefferson City, of the division of child hygiene of the State Board of Health, will preside.

Among physicians who will address sessions are Dr. E. M. Lucke, Hannibal; Dr. Thurman B. Rice, Indianapolis; Dr. Kendall Emerson, New York City; Dr. Scott P. Child, Mount Vernon; Dr. John W. Williams, Springfield; Dr. C. E. Rice, Rolla; Dr. George Gellhorn, Dr. Park J. White, Dr. Katharine Bain, Dr. Paul E. Kubitschek, Dr. Virgil Loeb, Dr. H. I. Spector, Dr. Emanuel Sigoloff, and Jean V. Cooke, St. Louis.

All sessions, dinners and luncheons are open to the public.

AMERICAN MEDICAL ASSOCIATION DIRECTORY

The American Medical Association Directory for 1934, the thirteenth edition, was issued in August after a three year period instead of the customary two years. The Directory is the recognized reference on many phases of medical information and the new Directory will make it possible for the Missouri State Medical Association to be of much more assistance to members wishing information on physicians, institutions, special societies and much other data.

Biographical facts on 176,687 physicians are listed, grouped by state, city and name. The year of birth, college, year of graduation, year of license, home and office addresses, office hours, whether or not the physician has a national license, practices a specialty, is affiliated with state or special societies or possesses a military title or professorship is indicated. While the body of the Directory is arranged geographically a complete alphabetical list of all physicians gives the city in which each is located. An addenda includes names received too late to be included in the body of the volume and names of physicians who died during compilation of the Directory.

Membership in special societies as well as state societies is shown in the biographical listing of physicians but a separate listing gives members of each special society

grouped alphabetically as to society and geographically as to members. Approximately 150 societies of general and special character are arranged alphabetically with the names and addresses of their secretaries.

A list of physicians located temporarily in foreign countries is given alphabetically under continent, country and locality and includes the organization to which the physician is attached as well as the data given on all physicians.

The Directory gives the location, the date established, the type of patients treated, the capacity, ownership and medical director of 7200 hospitals and sanatoriums. In a special classification are the names of hospitals approved for internship with the periods of the year given to this kind of training and the entrance requirements—whether students are accepted by examination or appointment. State and Federal institutions are grouped in this list. The hospitals approved for residencies are also listed, together with their specialties and terms of residency. Institutions are grouped under state headings with cities alphabetically arranged preceding the list of physicians.

More than 200 medical libraries are listed giving names and addresses, dates founded, the names of librarians and the number of volumes in the stacks. The libraries are listed alphabetically and geographically.

A listing of medical journals includes official publications of state societies, boards of health, special societies and journals devoted to one of the several specialties in medicine. The year established, publisher, editor, when issued and subscription rate are shown.

Medical colleges, both existing and extinct, are listed with the history including when founded, types of courses and names of deans and locations.

Each state section of the Directory is introduced by the medical law and board rulings for that state including acts governing medical practice, proceedings for licensure, reciprocity, requirements before license, laws explaining and limiting the practice of different branches of medicine and the penalties for violating the laws.

The 1934 Directory shows approximately 60,000 changes of address, 17,000 names of new physicians and 7000 dropped because of death. Other data carries a proportionate number of changes.

Compiling the Directory requires an inestimable amount of painstaking effort and its high degree of accuracy makes it extremely valuable to the profession. The American Medical Association publishes this volume as a service to members and the State Association will be glad to make available to members, at any time, information carried in the Directory. A phone call or a letter will bring any of these data to the physician's office. The Directory is a quick means of obtaining addresses and other personal data about physicians referring patients; it is a ready guide to hospitals and other institutions; it gives the laws of the various states. This information is at every member's disposal.

ANNUAL FALL CLINICAL CONFERENCE OF THE KANSAS CITY SOUTHWEST CLINICAL SOCIETY

Forty addresses are on the program for the general assemblies of the twelfth annual fall clinical conference of the Kansas City Southwest Clinical Society to be held in Kansas City, October 1 to 4. The August *Bulletin* of the Society is devoted to information on the conference and copies may be obtained from the executive office of the society, 207 Shukert Building, Kansas City, Missouri.

Twelve guest speakers and twenty members of the society will present addresses during the session on subjects pertaining to interesting features of medicine and surgery. Addresses appropriate for the lay public as well as the profession will be delivered by three of the guests at an open meeting on the first evening. Two lectures will be given by guest speakers before a joint meeting with Kansas City medical societies on the evening of October 2 and two short addresses will be presented each day by guests at the close of round table luncheons. The regular assemblies will be held morning and afternoon daily at the President Hotel.

Wednesday evening will be devoted to entertainment for the attending physicians and their families.

Scientific exhibits will be on display in the Congress Room of the President Hotel. These exhibits will include photographs, microphotographs, roentgen rays and pathological specimens of tuberculosis, arteriography, foreign bodies, tumors and cancer as well as clinical applications and demonstrations.

NEWS NOTES

Dr. W. L. Brandon, Poplar Bluff, has been appointed a member of the State Board of Health to fill the unexpired term of Dr. W. A. Clark, Jefferson City, who died April 11.

The Six County Medical Group will hold an all day scientific meeting at Poplar Bluff on September 11. Clinics, a lay meeting and a scientific session will be held on tuberculosis. The program will be furnished by the Missouri Tuberculosis Association, the Missouri State Board of Health and the Postgraduate Committee of the Missouri State Medical Association.

Dr. James L. Lewald, St. Louis, has resigned the superintendency of the St. Louis Training School for the Feeble-Minded to accept a position as superintendent of the District Training School at Laurel, Maryland, a Federal institution for feeble-minded. Dr. George A. Johns, St. Louis, superintendent of the City Sanitarium since April, 1933, has been appointed to succeed Dr. Lewald.

The International Assembly of the Inter-State Postgraduate Medical Association of North America will be held in the Public Auditorium, Philadelphia, Pennsylvania, November 5 to 9. Many distinguished teachers and clinicians will appear on the program. A major list of the names of the contributors to the program, with other information, appears on advertising page 16 of this issue of The Journal. All members of the Missouri State Medical Association are cordially invited to attend. The registration fee is $5 and admits all members of the profession in good standing.

Dr. Frank H. Ewerhardt, St. Louis, will conduct a clinical conference in the section on surgery and the surgical specialties at the meeting of the American Congress of Physical Therapy to be held in Philadelphia, September 10 to 13. The clinic will be on "Corrective Exercise." Drs. Ewerhardt, John R. Caulk, St. Louis, and Arthur C. Clasen, Kansas City, will open discussions during the sessions. Dr. W. P. Grimes, Kansas City, is a vice president of the organization. This will be the thirteenth annual scientific and clinical session of the congress. Headquarters will be in the Bellevue Stratford Hotel and papers will be presented and clinical conferences conducted each day at the hotel. Hospital clinics will be held on the day following the session.

Dr. F. C. Warnshuis, Grand Rapids, secretary of the Michigan State Medical Society, will leave that post on September 15 and on October 1 will assume the duties of secretary-treasurer of the California Medical Association with offices at 450 Sutter Street, San Francisco. Dr. Warnshuis is speaker of the House of Delegates of the American Medical Association. Dr. Burton R. Corbus, 313 Metz Building, Grand Rapids, will become acting secretary of the Michigan State Medical Society.

OBITUARY

AN APPRECIATION OF DR. WILLIAM H. KERWIN

William Kerwin was born at Graniteville, Missouri, in 1885. He was the only son of John Kerwin, a native of Massachusetts, and Bertha Hartmann, a daughter of Missouri and granddaughter of Kentucky. Amid the wondrous natural beauty of Iron County and among its fearless and fair-fighting boys and virtuous maidens young Bill was reared. There he took advantage of the educational opportunities available. He was admitted to the high school in Ironton where he completed the course winning the state scholarship to the Missouri State University at the age of fourteen years. Circumstances prevented his ever reaping this reward of his merit; he could not attend the university because of an illness which incapacitated him for almost two years.

In the fall of 1901 he decided to enter medicine without the preparatory university course and matriculated at the Washington University School of Medicine. How well one can remember him—a brown-eyed, stocky, tousled towhead, all life, merry motion and mocking laughter, but withal right there with the good grades. He was a favorite from the start but misfortune again put on a handicap. His illness, appendicitis, recurred again and again, no one seems to know how often. He was operated and reoperated upon until he himself lost count of the number of times; and again and again did we hear of him as being at the point of death but time after time he came back smiling, sometimes only for a few weeks. Class after class came and went but it was only in 1908 that "Bill" was able to carry through till graduation.

He knew what specialty he was going to follow and won the appointment of physician in charge of the obstetric dispensary at Washington University. Dr. Henry Schwarz was at that time professor and director of the department of obstetrics and gynecology and from the dispensary Dr. Kerwin became the first assistant to that master for two years more before he engaged in private practice "on his own."

He constantly maintained a connection with the medical school, first as assistant in surgery and later as instructor in gynecology and obstetrics in the clinic, the hospital and the class room.

In 1917 he applied for a commission in the Army but was refused after medical examination. This chagrined him very much yet he lent himself in other ways to the service carrying the work of a surgeon at the City Hospital while still attending to his duties in the department of gynecology and serving constantly on an examining board for the draft.

He remained with Washington University until 1922 when he went to St. Louis University as instructor in gynecology and obstetrics and associate in the same at St. Mary's Hospital. In 1929 he became assistant professor.

Dr. Kerwin was extraordinarily successful as a teacher and although few men have had a larger fol-

lowing in practice he continued to give gratis a very large portion of his valuable time to the school where he sought untiringly to advance the interests of that institution and of those others connected with it without at any time seeking personal gain or favor. To my knowledge he never was one to ask any person to "put in a word" for his advancement trusting always that honest and efficient application would in time meet merited appreciation and real reward.

Always a staunch member of the organized profession he enjoyed the confidence of the St. Louis Medical Society and represented it in the State Association House of Delegates. He was at one time president of the St. Louis Surgical Society. He was a member of the American Board of Obstetrics and Gynecology and the Central Association of Gynecology and Obstetrics, and although strictly adhering to his specialty, he was unanimously elected to membership in the Western Surgical Association. He was long a fellow of the American College of Surgeons.

His contributions to the literature are to be found in the state, national and even German professional journals and he is best known for his original method of surgical arrest of postpartum bleeding—a new method for the absolutely certain control of perhaps the most deadly and oldest known of obstetrical catastrophes.

In 1913 he married Miss Myra Stromberg of St. Louis, and she and a family of three girls and a boy survive him.

The doctor was an enthusiast in all outdoor sports and while on a hunting trip in October, 1932, he contracted a rheumatic attack. It proved to be an infection of streptococcus viridans. All that is known was done but the expected happened in due course.

Illness reveals the man; but with him it forced no revelations. Brave in his sickness as in health he fought it out and he himself remained, I may say, quite to the end the most cheerful and optimistic of us all. He carried through just as one who knew him would have expected. He died April 6, 1933.

He is remembered as a high class professional gentleman, a skillful and conscientious surgeon, an efficient, forceful and considerate teacher, a good and faithful husband, a kind and loving father, a true and loyal friend and a fair-fighting foe—such a man as you'd like to be yourself.

William T. Coughlin, M.D.

LUCIEN E. ELLIS, M.D.

Dr. L. E. Ellis, Orrick, a graduate of the University Medical College of Kansas City, 1905, died after a six months' illness April 22, aged 56 years.

Dr. Ellis was born near Orrick and attended school in that community and the Chillicothe Business College. He taught school for a number of terms in southwest Ray County before beginning his medical work.

After completing his medical education he entered practice in Orrick. He enjoyed his professional work and his own community was dear to him. The night was never too dark nor the roads too muddy for him to answer the call to the bedside of a patient. He was kind-hearted and courteous and had the happy faculty of making friends with everyone.

Dr. Ellis was a loyal member of the Ray County Medical Society.

He is survived by his widow, Mrs. Gertrude Ellis, three daughters, his father and two grandsons.

AARON R. ELDER, M.D.

Dr. A. R. Elder, Harrisonville, died at his home April 5, of coronary sclerosis.

The doctor was a charter member of the Cass County Medical Society and for a number of years took an active part in the meetings. He was an ex-president of the Society and served in other capacities in the interest and welfare of the local county medical organization.

He graduated in medicine from the Missouri Medical College, St. Louis, in 1884 and went immediately to Harrisonville to take up the work of his profession.

For more than half a century he had been a physician of Cass County. For a number of years he was not engaged in the practice of medicine but some time before his death he again resumed the work of his profession and early in 1929 he was appointed health officer of Cass County in which capacity he served four years He was in his eightieth year at the time of his death and was the oldest medical practitioner of the county.

While he was not a member of the Cass County Medical Society for some time prior to his death, he attended the meetings frequently and enjoyed the association of his fellow physicians of Cass County.

He had been a member of the board of education for the last sixteen years and served as its president during this time with the exception of one year.

At a recent meeting of the Cass County Medical Society it was voted that "In view of these facts a page shall be set apart in the records of our organization as a memorial of the work the doctor has done in the interest of organized scientific medicine and of the service he has rendered the citizens of our county both as a physician in private work and public health service and in various capacities in the interest of the civic welfare of our community."

M. P. Overholser, M.D.

M. T. COLLINS, M.D.

Dr. M. T. Collins, Sedalia, a graduate of the Medical College of Ohio, Cincinnati, 1889, died from apoplexy at his home, July 7.

Dr. Collins was born at Youngstown, Ohio, and spent his early life in Ohio. One year after his graduation in medicine he went to Sedalia and began the practice of medicine.

He became a member of the Pettis County Medical Society early in his career and held several offices in the Society, among them, president in 1920, alternate to the State Meeting in 1920, censor in 1924 and 1927.

He is survived by his widow, Mrs. Maude Collins, and two sisters.

The Pettis County Medical Society adopted the following resolution:

Whereas, By the death of Dr. M. T. Collins, the Pettis County Medical Society and the medical profession have lost a worthy, efficient and esteemed member whose long years of membership in the Society and faithful service in his profession, his church work and exemplary family life have not only brought him many friends but added to the welfare of the community in which he lived; therefore be it

Resolved, The Pettis County Medical Society has lost one of its oldest and most faithful members; the family a devoted husband and brother; the community an intelligent Christian gentlemen. Be it further

Resolved, As a tribute to our departed brother a copy of these resolutions be sent to the family, a copy each to the local press and the Missouri State Medical Association, and a copy spread on the minutes of the Pettis County Medical Society.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

Barry County Medical Society, May 15, 1934.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met at the courthouse at Jackson, July 9. Dr. H. V. Ashly, Cape Girardeau, president, being absent, Dr. D. I. L. Seabaugh, Jackson, called the meeting to order.

Members present were Drs. D. I. L. Seabaugh, B. W. Hays, D. G. Seibert, G. W. Vinyard, Jackson; J. H. Cochran, O. L. Seabaugh, M. H. Shelby, S. Doggett, C. A. W. Zimmermann, Cape Girardeau. Guests were Drs. Rusby Seabaugh and M. A. Estes, Jackson, and Paul Nussbaum, Cape Girardeau.

Dr. Sylvester Doggett, Cape Girardeau, read a paper on "Institutional Care and Classification of the Insane." This was followed by a discussion.

Meeting of August 13

The Society met in the Chamber of Commerce rooms at Cape Girardeau, August 13.

In the absence of the president, Dr. H. V. Ashly, Cape Girardeau, the vice president, Dr. D. I. L. Seabaugh, Jackson, called the meeting to order. Those present were: Drs. N. F. Chostner, R. A. Ritter, J. H. Cochran, M. H. Shelby, E. H. G. Wilson and C. A. W. Zimmermann, Cape Girardeau. Drs. Paul Nussbaum, Cape Girardeau, and M. A. Estes, Jackson, were guests.

The application for membership of Dr. Paul Nussbaum, Cape Girardeau, was read and referred to the board of censors.

Dr. J. H. Cochran, Cape Girardeau, moved that a committee be appointed to draft resolutions on the death of Dr. W. N. Howard and suggested that since Drs. B. W. Hays, Jackson; G. W. Walker and J. H. Cochran, Cape Girardeau, constituted such a committee of the staff of the Southeast Missouri Hospital the same committee be appointed to serve the Society. Dr. N. F. Chostner, Cape Girardeau, seconded the motion which carried and Dr. Seabaugh appointed these men to the committee.

Dr. J. H. Cochran, Cape Girardeau, read a paper on "Diagnosis of Pyloric Stenosis in Infants." The paper, an interesting one, was extensively discussed.

Carl A. W. Zimmermann, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met at the St. Francis Hospital, Maryville, April 4.

The meeting was called to order by the president, Dr. C. D. Humberd, Barnard, with the following members present: Drs. B. F. Byland, Burlington Junction; C. W. Kirk, Hopkins; J. M. Boyles, Conception Junction; L. E. Dean, W. R. Jackson, C. V. Martin, R. C. Person, C. T. Bell, Hiram Day, Jack Rowlett and W. M. Wallis, Jr., Maryville. Guests present were Drs. G. W. Robinson, Jr., and R. B. Schutz, Kansas City; F. R. Anthony and Forrest Martin, Maryville; M. A. Mulvania, Fairfax; Earl Braniger, Jesse Miller and H. L. Stinson, dentists, Maryville; Miss Frances Daniels, Missouri Tuberculosis Association; Mr. J. L. Lawing, Maryville, and three sisters from the hospital staff.

Dr. F. R. Anthony, Maryville, gave a brief discussion on "The Prevention of Nasopharyngeal Irritation Caused by Local Application of Nasal Sprays, Etc." pointing out that if these are used over a long period of time they destroy the mucous surface of the mucous membrane causing susceptibility to acute and chronic infections.

Miss Frances Daniels discussed "The Prevention and Hygiene of Tuberculosis" explaining the routine measures which have been adopted by the Tuberculosis Association and how they are being carried out. She told of the work in several counties. Dr. C. V. Martin, Maryville, moved that a committee be appointed to meet with the county tuberculosis board. This was seconded by Dr. C. W. Kirk, Hopkins, and the motion carried. Dr. C. D. Humberd, Barnard, appointed the following committee: Drs. W. R. Jackson, Hiram Day and C. V. Martin, Maryville.

The scientific program was presented by the guests from Kansas City who had come through the courtesy of the Postgraduate Committee of the Missouri State Medical Association.

Dr. G. W. Robinson, Jr., Kansas City, presented an interesting lecture on "Paraplegia" giving its functional causes and organic diseases of the upper and lower motor neurons and muscle dystrophy. His lecture was illustrated by a carefully chosen series of lantern slides and diagrams. Discussion was by Drs. C. D. Humberd, Barnard, and Forest Martin, Maryville.

Dr. R. B. Schutz, Kansas City, gave an interesting talk on "Skull Fractures" differentiating basal, pterions, frontal and temporal fractures. He outlined the best treatment for each. His address was discussed by Drs. F. R. Anthony, Maryville; M. A. Mulvania, Fairfax, and B. F. Byland, Burlington Junction.

W. R. Jackson, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Tenth Councilor District, under the auspices of the Randolph-Monroe County Medical Society, held a cancer meeting and clinic on June 12 in the lecture room of the Central Christian Church, Moberly.

At the lay meeting in the afternoon Dr. M. Pinson Neal, Columbia, lectured on "Cancer, An Individual and Community Problem" after which a clinic was held by Dr. Dudley A. Robnett, Columbia, before members of the profession attending the meeting. The clinic included examination of patients believed to have and those known to have cancer.

At 6 o'clock, dinner was served by the women of the church.

Following the dinner Dr. Robnett gave an address on "Treatment of Cancer" and Dr. Neal talked on "The History of Cancer."

This was an interesting and instructive meeting and was profitable to the community as a whole as well as to the profession. The Society was fortunate to have such excellent speakers.

About seventy-five laymen attended the afternoon session and twenty-three physicians were present at the clinic and evening session. The physicians attending were Drs. L. E. Huber, F. L. McCormick, L. O. Nickell, Jesse Maddox, C. H. Dixon, P. C. Davis, O. K. Megee, M. E. Leusley and T. S. Fleming, Moberly; R. R. Price, Triplett; H. E. Tatum, Brunswick; J. F. Flynt, Paris; D. A. Barnhart, Huntsville; W. C. Alexander, Clifton Hill; J. D. McAdam, Prairie Hill; W. E. Johnson, Madison; F. L. Harmes and Dr. Allen and A. W. Paulette, both of the CCC at Salisbury; and D. A. Robnett and M. Pinson Neal, Columbia.

F. L. McCormick, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Advisor, Dr. J. F. Harrison, Mexico.

The Auxiliary page in the State Journal is not the only part of the Journal which should be of interest to Auxiliary women. The August Journal has much that should interest the lay reader. The leading editorial is an admirable appreciation of the life and achievements of Mme. Marie Curie giving due recognition to the value of her work in the alleviation of suffering and the cure of malignant disease, and also the resulting far reaching developments in understanding the structure of matter.

Two other articles in the same Journal are of especial interest to dietitians. And surely doctors' wives should be potential if not actual dietitians. One is a radio talk, "Ice Cream, America's Most Excellent Health Food," given by Professor W. H. E. Reid of the University of Missouri, over WOS June 8, 1934. The second, by Roy H. Monier, reveals the soy bean as a palatable and nutritious food, desirable in the general family menu and valuable in certain special diets.

Tucked in a corner is an informing article concerning "Cosmetics—Past and Present" from the *Journal* of the American Medical Association, June 23, 1934. This shouldn't be missed even though it closes thus: "the American women are rapidly ceasing to look like barbarians and agree that the best face is the natural face."

The recent appearance of advice given by doctors directly and through the secular press to use more salt in our food and drink to combat heat includes the publication in the August *Hygeia* of a fine explanatory article by Dr. Lee D. Cady, St. Louis, on that subject. The August *Hygeia* has its usual characteristic wealth of interesting and informing articles. Our state chairman of *Hygeia,* Mrs. E. T. Gibson, 441 West 68th St. Terrace, Kansas City, is wisely ambitious that the circulation and reading of *Hygeia* be greatly extended among individuals and in schools and will be glad to give club rates and other information.

The new state auxiliary chairman of public relations is Mrs. U. J. Busiek, Springfield, appointed to fill the place of Mrs. Floyd H. Spencer, St. Joseph, whose serious illness occasioned the latter's resignation.

The special recommendations of the national public relations chairman, Mrs. David S. Long, Harrisonville, appeared in the July Auxiliary Quarterly *Bulletin.* Mrs. Busiek desires members to give this their attention and to read in the American Medical Association *Bulletin* of June, 1934, an article, "Pennsylvania Congress of Parents and Teachers," copied from the Pennsylvania Medical *Journal,* which very aptly supplements Mrs. Long's Recommendation No. 1 and shows the cooperation in Pennsylvania by the state Congress of Parents and Teachers with this recommendation that the examination of children of the summer round-up, wherever practicable, be in the office of the family physician rather than in a general clinic. The article sets forth convincingly the reasons for this recommendation.

Mrs. M. Pinson Neal and Mrs. Milton D. Overholser, Columbia, are in Memphis this summer where their husbands are teaching in the summer school of the University of Tennessee Medical College.

Mrs. F. W. Gillham, Jefferson City, the new president of the Cole County Auxiliary, is having a vacation trip with her daughter who will enter Wellesley in September.

Buchanan County reports improvement in the health of Mrs. Floyd H. Spencer, St. Joseph.

Mrs. Charles W. Thierry, St. Louis, is representing the St. Louis Auxiliary in the Better Films Council of St. Louis.

The lessons in parliamentary law given last year by Mrs. Frederick S. Haeberle to the St. Louis Auxiliary are to appear this fall in convenient booklet form under the title "The President's Guide."

The mysterious No. 6 who won second prize in the state essay contest has been discovered. It is Davis Shiflette of Meadville, Linn County.

Mrs. M. P. Overholser, Chairman,
Press and Publicity Committee.

THE JOURNAL

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MEDICAL ASPECTS OF THYROIDECTOMY FOR ORGANIC HEART DISEASE

JULIUS JENSEN, M.D.

ST. LOUIS

In the last year considerable attention has been given to thyroidectomy for heart disease. The procedure was initiated in 1932 in Boston by Blumgart and his coworkers. The principle is based on the fact that the rate of metabolism is governed by the thyroid gland. If the thyroid gland is removed the metabolic rate is lowered; with the lowering of the metabolic rate there is a diminished demand for oxygen by the tissues; if the oxygen requirements are lessened the demands on the circulation are diminished. While a damaged heart may not be able to carry the full circulatory load of normal metabolism, it may be able to carry completely the load of a lowered metabolism. Thus it may be possible to obtain adequate circulation with a damaged heart by removing the thyroid gland. An analogous development is seen in congestive heart failure in hyperthyroidism when compensation returns with the lowering of the metabolic rate following thyroidectomy.

At first thought the procedure seems drastic in view of the metabolic and endocrine disturbances which are likely to result from thyroidectomy. But at present the procedure is limited to advanced cases which have little else to expect from life.

The preliminary reports from Boston were so promising that the procedure seemed worthy of trial elsewhere. Recently Dr. Blumgart reported further experiences with thyroidectomy for heart disease, viz.: 40 cases of congestive heart failure and 20 cases of angina pectoris. The results continue to offer considerable promise.

During the last six months Dr. Duff Allen and I have studied a number of cases of heart disease with a view to thyroidectomy for the cardiac condition. Dr. Allen has performed the operation on six cases. I have also studied one case with Drs. Baumgarten and Hyndman and thyroidectomy was performed. Our results have been quite as promising as those reported from Boston. Although so far we have been lucky and all of our cases are still alive, the procedure must still be considered in a preliminary stage. I am informed that in one medical center four patients were submitted to thyroidectomy with three fatalities. It must be emphasized that extreme care is needed, both in the selection of cases and in the surgical technic in its widest sense.

Probably the best impression of the value of thyroidectomy for heart disease may be gathered from a brief report of some of our cases.

REPORT OF CASE

The first patient was a 39 year old colored female who had had rheumatic heart disease for sixteen years, and during the last six years she had been incapacitated. Gradually she had become confined to bed where she had spent the best part of the six months before the operation. She was orthopneic and became breathless on the slightest exertion. From time to time she had had marked edema and the usual changes of congestive heart failure. She also had auricular fibrillation. She was fast losing ground in spite of careful medical treatment, including digitalis. Several pulmonary infections had resulted in pleural adhesions. The vital capacity was 800.

As medical treatment had nothing further to offer, thyroidectomy was proposed. The operation was done by Dr. Allen, in two stages, on September 29 and October 6, under amytal-morphine anesthesia supplemented with nitrous oxide.

On October 21 her sleep had improved considerably and she could now lie flat. On October 24 she walked eight yards; on November 1 she walked 65 yards; on November 11 she climbed six steps, and before she left the hospital she could climb fifteen steps without much discomfort. Before the operation the basal metabolic rate varied between +7 and −2. After the operation it gradually fell to about −20 where it has since remained.

Following discharge from the hospital she remained compensated for several months and did light work

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

around the house. On a readmission to the hospital on January 10, 1934, for a check-up, it was thought that she barely held her own. Soon afterwards her abdomen began to swell. Ascites increased gradually but was not accompanied by dyspnea or peripheral edema. After numerous paracenteses an omentopexy was attempted on March 20 but fluid continued to accumulate. She now attends St. Louis County Hospital about every five days for paracentesis. She is otherwise comfortable. Her appetite is good, she has a moderate exercise tolerance and has no orthopnea or peripheral edema. Her fibrillation is easily controlled with small doses of digitalis.

Our conclusion in this case is that the patient has benefited markedly from the operation. She is alive today and is comfortable compared with her condition before the operation.

REPORT OF CASE

The second case was a 28 year old female with rheumatic heart disease and auricular fibrillation. Though she had no congestive failure she became dyspneic on the slightest effort and had repeatedly been in hospitals for extreme weakness. When given digitalis her heart rate became very slow before enough of the drug was given to obtain a general digitalis effect. Her basal metabolic rate varied from +16 to +27, but she showed no other signs of hyperthyroidism.

Because medical treatment was unsatisfactory and congestive failure was thought imminent, total thyroidectomy was done on November 3. Recovering from the operation she felt herself improved and was discharged on November 28. She did not do well at home and soon developed a myxedematous appearance and was readmitted with impending failure on December 15. The heart rate was slow, the rhythm fibrillating with pulsus bigeminus. Her basal rate on December 19 was –7. Assuming that at least some of her symptoms might be caused by hypothyroidism she was given thyroid extract but she steadily grew worse until January 2, 1934, when her basal rate was +19. The thyroid extract was then stopped. She gradually improved and was finally discharged almost compensated. At home she did poorly and on March 16 she was again admitted with advanced congestive heart failure. At the suggestion of Dr. Strauss she was now given belladonna and digitalis together. She once more recovered compensation and left the hospital on April 20.

Our conclusion in this case was that the improvement following thyroidectomy was not striking.* Congestive failure was not prevented but it is impossible to say whether or not the progress of her congestive failure was delayed by the thyroidectomy. The fact that she became worse on thyroid extract suggests that this may have been the case.

REPORT OF CASE

A third case is from St. Luke's Hospital. This is a woman aged 51 with rheumatic heart disease, cardiac enlargement, mitral stenosis and regurgitation. In March, 1933, she developed auricular fibrillation. Her course had been progressively worse, the congestive heart failure advanced. Her admissions to the hospital became more frequent and her response to digitalis less and less satisfactory. In addition, she had had two major operations, a cholecystectomy in January, 1932, and a hysterectomy in October, 1932; both were followed by severe pulmonary complications. During the fall of 1933 her congestive heart failure became so severe that repeated tappings of the chest were necessary. When she was admitted for the eighth time on January 13, 1934, orthopnea was marked. There were fluid and râles over the right pulmonary base; the respiratory rate was 26. She had auricular fibrillation with an apex rate of about 100 and a pulse deficit of 16. The liver was down four fingers and there was free fluid in the abdomen.

After four weeks of medical treatment she was somewhat improved; her lungs were clear but other evidences of heart failure persisted.

On February 9 Dr. Hyndman performed a total thyroidectomy under amytal-morphine-nitrous oxide anesthesia. Recovery from the operation was almost uneventful. Pleurisy threatened for a few days; she remained hoarse for over two weeks and a few adhesions formed between the wound and the trachea and had to be broken down.

In less than a week she could lie almost flat and on her left side, which she could not do before. The liver was no longer felt. She gradually resumed exercises. In about five weeks she walked through a long corridor and up six steps without much effort. On April 7 she visited the hospital after having been home for a few weeks. She was still feeling fine, had no dyspnea on slight effort or other signs of heart failure. Only a very small amount of digitalis was required to control her fibrillation. Her basal metabolic rate had fallen from +10 before the operation to –22.

The impression in this case was that the thyroidectomy was followed by marked and striking benefits.

REPORT OF CASE

A fourth case was a white man aged 60 who for five years had been suffering from degenerative heart disease that forced him to lead the life of an invalid. For two and a half years he had had nocturnal attacks of precordial pain radiating into the left arm. He was very emphysematous and became very breathless on exertion. His blood pressure in January, 1934, was normal. His basal metabolic rate varied from –3 to –20 but the tests were not satisfactory. His electrocardiogram indicated myocardial damage in that the T waves were diphasic in lead 1 and there was left axis deviation. On roentgen ray examination the size of the heart was at the upper limit of normal. The vital capacity was 3500. Medical treatment failed to give material relief.

On February 24 Dr. Allen performed a total thyroidectomy. The patient recovered completely from the operation and stated that he felt improved. Since the operation he has suffered no nocturnal pains. As long as he is at rest he feels well but he complains that his exercise tolerance is not increased. This is confirmed by his response to measured effort which is not improved. His basal metabolic rate, which soon after the operation was –1 and –2, has fallen to about –20 and he has developed a myxedematous appearance. He sleeps better than he did before and his appetite is much improved. At no time has he shown evidence of congestive failure.

The impression is that this man is certainly relieved from pain but that his actual

* Note: This patient has since improved much and is now comfortable and compensated.

myocardial reserve and his ability to do things are not improved.

Several other cases have been treated with thyroidectomy for heart disease but time does not permit a more detailed report. Suffice it to say that after eighteen months of trial this procedure still remains full of promise. It broaches a new principle in the treatment of heart disease but the method is still at an experimental stage and beset with many difficulties. We are as yet without definite criteria for the selection of cases; the technic of the operation is complicated; the risk of the operation is great considering the danger of parathyroid deficiency, injury to the recurrent laryngeal nerve and of pulmonary or cardiac complications. Therefore, much more work remains to be done before the method can be placed with reasonable safety in the hands of the general surgeon.

912 Beaumont Building.

THYROIDECTOMY FOR ORGANIC HEART DISEASE

DUFF S. ALLEN, M.D.
ST. LOUIS

The gradual growth and extension of our knowledge from that concerning the relation of the toxic goiter to heart disease to that concerning the relation of the normal thyroid gland to organic heart disease has just been described by Dr. Jensen. The purpose of my paper is to extend this discussion from the rationale to the practical application of it. The practical experience in the thyroid-cardiac syndrome has also been built up bit by bit.

I need not dwell on the effect upon the circulation of the removal of a toxic goiter. This is common knowledge. The phase with which we are especially concerned is the effect upon the circulation of removal of the normal thyroid. This is new.

Roger Morris in 1930 reported a small series of patients with symptoms of heart failure and subnormal (minus) basal metabolic rates but with other symptoms of thyrotoxicosis who showed striking improvement following subtotal thyroidectomy. Morris and Reid, continuing the same study, found improvement in the circulation in patients who showed no signs or symptoms of toxic goiter except a nodular gland. They advised subtotal thyroidectomy in nearly all patients with cardiac decompensation and with nodular thyroids. They considered these symptomless patients to be cases of "burned out hyperthyroidism."

Levine in 1931 reported a group of patients with heart disease in which "The common signs and symptoms usually found in typical exophthalmic goiter and toxic adenoma were not evident." These patients had organic heart disease, some with angina pectoris, hypertensive heart disease and some with mitral stenosis. Many of these were greatly improved by subtotal thyroidectomy.

Blumgart and his coworkers studied the velocity flow of blood through the lumps in patients with thyrotoxicosis, myxedema and with normal thyroid. Because of the slow velocity flow of blood in patients with subnormal basal metabolic rates they concluded that total ablation of the normal thyroid would take the load off the heart.

The first recorded total ablation of the normal thyroid as a treatment for organic heart disease was reported by Blumgart, Levine and Berlin. It was performed on December 15, 1932. The patient was a man 52 years of age who had arteriosclerotic heart disease, auricular fibrillation and emphysema of the lungs. He had had recurrent congestive heart failure which had been marked by orthopnea, edema of the legs, enlargement of the liver and attacks of precordial pain. He had been confined to the house or the hospital for three years and had had adequate medical treatment. His basal metabolism was –1 per cent before operation; it fell to –28 per cent four weeks after operation. Five months after operation he could walk a mile without dyspnea and worked six days each week for eight hours a day as a laboratory helper; all his symptoms of decompensation had disappeared.

When we first began to turn this subject over in our minds it seemed very probable to me at least that if the work required of the heart could be reduced by removal of the normal thyroid gland, then almost every patient with organic heart disease and signs of decompensation might be a fit candidate for thyroidectomy. It soon became evident, however, that certain of these cases of advanced heart disease did not need the operation; certain of them should not have it and in two of twelve cases we have actually sent the patient out of the hospital with the suggestion that thyroid be administered rather than have thyroidectomy. Even in this early stage of experience with the problem it is apparent that each case must be analyzed carefully and that keen judgment must be displayed to avoid useless operations.

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

What, then, are the indications and contraindications for the operation of total thyroidectomy? I shall give the most important of these briefly but in doing so I wish to make it perfectly clear that these indications are subject to change. Of course, we cannot know as much about the subject in one or two years as we will ten years from now.

Briefly the indications today for the operation are these:

1. Advanced chronic myocardial insufficiency. This may be manifested by (a) angina pectoris, (b) congestive failure. The predominative symptoms of the latter may be edema and ascites or respiratory.
2. Failure of medical treatment to maintain the patient in a state suitable for work.
3. Slow progression or at least not rapid progression of the condition.
4. Long continued disability. A long period of observation of the case by the same cardiologist is essential to the establishment of our opinion in regard to the severity of this disability.
5. A lessened exercise tolerance.
6. A circulation time from the elbow to the tongue of less than one minute.
7. Ability to withstand the operative procedure.
8. A considerable cardiac reserve.

The contraindications for the operation are these:

1. Adequate response of the patient to well established medical treatment. By "adequate" we mean that the patient should be able to be out of bed and out of the house and able to work for at least several months at a time.
2. Rapid progression of the symptoms.
3. Dyspnea due to an inadequate respiratory system: (a) diaphragm; (b) emphysema, (c) bronchial asthma.
4. Vital capacity equal only to the tidal air.
5. Absence of cardiac reserve.

Perhaps I can fix these indications and contraindications in our minds better by describing the high lights observed in working up our cases. First a careful study of the history of the case is made to determine the length of time of the symptoms, the rate of progress, the response to rest and medication and the severity of the cardiac condition. Then the usual analyses are made of the renal and digestive systems. A rather careful evaluation is made of the patient's mental status since we have been interested in the experience of Levine that these cardiac patients with total thyroidectomy often have a clearing up of the mental haze following the operation.

The usual symptoms and signs of toxicity of the thyroid, or rather nontoxicity of the thyroid, are carefully noted. Repeated basal metabolic tests are made twice weekly before and after the operation.

The most critical part of the examination centers around the cardiovascular and the respiratory systems. These examinations fall into two distinct groups but they overlap. First, we obtain the correct evaluation of the condition of the heart and vascular tree. The efficiency of the heart is determined by noting the presence of edema, shortness of breath, size of the heart, auscultation of its sounds and electrocardiographic studies. In addition to these, the venous pressure is measured as well as the velocity flow of the blood and the tolerance to a known amount of work. The venous pressure is measured by the glass capsule method of White. A glass capsule is fastened with collodion over the vein of the dorsum of the hand and the amount of pressure needed to collapse the vein is measured. The hand must be on a level with the auricles. The velocity flow of the blood is measured by injecting 5 c.c. of a 20 per cent solution of sodium dehydrocholate into the antecubital vein and measuring the time interval with a stop watch between the injection and its arrival in the tongue.

The exercise tolerance is measured by having the patient walk up a flight of two steps, the first being nine inches and the second six inches, then over an eighteen inch platform and down two similar steps. Thus the patient takes two steps up, one over and two down. He then turns around and walks back over the contraption. The number of foot pounds of work can be calculated but a simpler method is to term each trip up, over and down as one "effort." Sir Thomas Lewis and his co-workers have established the normal number of efforts using such stairs and thus it is a simple matter to determine the deficit in the particular patient's ability to perform work by noting the number of efforts he can make and the time it takes him to carry it out. Following this the blood pressure and the pulse rate are recorded at one minute intervals to determine the recovery period of the heart.

Before proceeding to a consideration of the respiratory system, I should like to discuss the measurement of the velocity flow of the blood. This is of the greatest importance in these cases since it is one of our most accurate indicators of the demands of the body tissues for blood. It thus gives an index to the work required of the heart. It has been found that patients with toxic goiter have a greatly increased velocity flow of blood. There is a striking decrease in the velocity flow of the blood in patients with hypothyroidism. In actual figures there has been found by Blumgart and Soma Weis to be an increase of 83 per cent in the velocity

blood flow with an increase of 33 per cent in the basal metabolic rate. These figures are the mean average of a series. In a single case of spontaneous myxedema with a basal metabolic rate of –25 the velocity flow of the blood was only 54 per cent of the normal. In seven of ten cases with total ablation of the normal thyroid the velocity flow was decreased conspicuously after operation.

The normal elbow to tongue time or velocity flow is eighteen seconds. In cases with hypothyroidism, the velocity is slowed so that the time interval is often twenty-five to thirty seconds instead of eighteen seconds. Nevertheless, this slow velocity flow of the blood is sufficient to maintain the tissues in excellent condition.

What does this mean to a patient with a damaged heart and a normal thyroid? It shows the possibility of reducing the velocity flow of the blood, i. e., the work of the heart, by reducing the basal metabolism to a subnormal rate by removal of the normal thyroid.

The Respiratory System.—A proper evaluation of the function of the respiratory system is essential in these cases since respiratory difficulty, amounting often to orthopnea, is so frequently a symptom of cardiac failure; and the same respiratory difficulty may be found in patients with a perfectly normal heart but with a crippled respiratory apparatus. The keen analyst will be able with a fair degree of accuracy to separate the causes of the dyspnea in each individual case into those originating from the deficit of the heart and from the deficit of the respiratory mechanism. Fluoroscopic examination of the chest is invaluable in doing this. Under the fluoroscope one can observe the motions of the diaphragm, the motions of the ribs and the direction of their axis. If one has a sufficient conception of the normal respiratory movements of the diaphragm and of the action of the ribs, one can often estimate the part played by the respiratory mechanism in producing the dyspnea. The vital capacity of the lungs is of great help in this.

The vital capacity of the lungs is valuable both in the analysis of the dyspnea and in estimating the operative risk. Exact knowledge concerning it is of the greatest importance at the time of the operation.

The operative procedure for removal of all the thyroid gland is far more difficult than the usual subtotal thyroidectomy. I should say that total thyroidectomy is three times as difficult as the subtotal procedure. The reasons for this are that in removal of all the thyroid gland one must dissect out all all the parathyroid glands and preserve their blood supply if at all possible. They are most often found enmeshed in the terminal branches of the inferior thyroid artery. In addition, one must dissect the gland free from both recurrent laryngeal nerves being careful to avoid injury to them. They are often found anterior to the inferior thyroid artery. Then too there are two branches of the superior laryngeal nerves which supply the short cricothyroid muscles. These muscles are powerful tensors of the vocal cords. Injury to the trachea is more likely to occur during total thyroidectomy than with subtotal since all the gland must be removed at its firm attachment to the trachea at or just below the cricoid cartilage.

The anesthesia is a matter of unusual moment in these cases with advanced myocardial insufficiency. Only the minimal amount of general anesthesia is permitted. Local anesthesia confuses the picture and interferes with the accurate dissection. We have given our patients nitrous oxide oxygen analgesia, the patient being held so slightly under the influence that he can be brought out to use his vocal cords at any time desired. In our last case the patient was under gas anesthesia only nine minutes although the operation lasted more than one hour. The anesthetist plays a leading role in the operation and only the expert anesthetist should be allowed to give the anesthesia.

Up to the present time, we have had sixteen patients who were considered as candidates for total thyroidectomy. Eight of the sixteen have been thought to be unsuitable for the operation for one reason or another.

One was refused operation because of lack of severity of the myocardial damage; in two the operation was not advised because of an already existing thyroid want, and two had not had their uncontrollable symptoms long enough and one patient responded too well to the proper dosage of digitalis. It is probable that two of the eight will eventually come to operation. Four patients died while waiting for the operation.

Lister Building.

DISCUSSION

Dr. R. M. Waller, St. Joseph: This type of case interests me very much. It was my good fortune to be on the service of Dr. H. S. Plummer for a period of nine months. His experience with and the handling of hyperthyroid cases is probably not excelled in this country. Several years ago before hospital facilities were sufficient to house all the thyroid cases in their entire preoperative care, the general mortality was low, between 2 and 4 per cent. After there were sufficient beds and the cases were hospitalized and more or less digitalized the mortality rose to around 10 per cent. Dr. Plummer was worried and

could not explain the situation. Many of these became irrational and autopsies showed definite edema of the brain. They stopped the use of digitalis except in a few cases where prolonged bed rest was not sufficient to allow compensation to take place. Here it was given more as a diuretic. The mortality rate promptly returned to the former low figure. In other words, if a thyroid case can be operated on without the use of digitalis it is far better to do so. I think that all these cases should be put to bed for at least most of their hospital stay to get them in good shape. Time and bed rest are far better than digitalization; otherwise your mortality rate will be higher than one should reasonably expect.

Dr. W. M. Ketcham, Kansas City: Have you done any surgical work in cases with left ventricular failure as a result of coronary sclerosis?

Dr. John H. Musser, New Orleans: I think this work of Blumgart and his associates is one of the great contributions to medicine of the last few years. It represents a most distinct advance in cardiology and is of great interest to the whole realm of medicine.

I would like to recount some of my own experiences. We have had but ten cases in the Charity Hospital, five in Dr. Ochsner's service, all of whom came through beautifully; and five in other services with three deaths. I think with Dr. Jensen and Dr. Allen that this is not an operation that should be entered into lightly but should be carried out with very careful preoperative study of the patient. The mortality rate of 60 per cent in five cases is so large that we hesitate very much to suggest operation. Even at the best these patients have but a few months to live. I personally have had one congestive failure case and one of angina pectoris operated upon.

I happened to hear Dr. Blumgart talk last Wednesday night. He has many more cases now than the essayists mentioned, a total of 80. In those cases the mortality rate was not increased in the last twenty over the previous sixty.

The response of these individuals is just as striking as Dr. Allen has shown in the moving pictures. It is perfectly astounding. Just before I left home a patient came back into my ward at the Charity Hospital who had had her thyroid totally removed last fall. She previously had been a cardiac bedridden cripple for two or three years. In the intervening time since the operation she was up and about. She was feeling so well after the operation that she started in rather vigorously after three of four months' rest, but her trouble returned and of course she had heart failure. She came in as the result of doing a washing for a large family. Of course it was perfectly ridiculous for her to have done that, but cautioning her had no effect.

I have enjoyed this presentation very much. I think it is interesting to see what is being done elsewhere. I can only add that it is a magnificent operation in properly selected cases.

Dr. Julius Jensen, closing: The question of whether these patients should be digitalized before operation or not is difficult to answer. Certainly I do not think that the problems are exactly similar in toxic goiter and congestive heart failure. In congestive heart failure we do obtain such marked improvement in some cases from proper digitalization that it will take a good deal of convincing before we relinquish that means of giving the patient comfort before the operation. It may be that later on we shall have to change our minds.

As Dr. Allen says, this is just the beginning and we are not in position to make emphatic statements, but I feel at this time that the principle has something to it. We are extending the principle of rest which underlies the treatment of all cardiac disease into a new province, namely, rest at rest.

I do not know just what the value of this will be in coronary disease, or the extensive degenerative changes that occur in the heart, bundle branch block, etc. Our experience up to the present seems to indicate that we will not increase the ability of the heart to do things, but we will relieve these patients of one of the most distressing symptoms which in many cases is the result of coronary disease, namely, precordial pain which is called angina pectoris.

Dr. Musser, I think, does not require any answer, except that we are interested to know what is being done in New Orleans. This procedure is at present on trial throughout the United States and it seems to meet a response everywhere. I do not know if it is being carried on in Europe.

SKIN TESTING IN ALLERGY

HERBERT J. RINKEL, M.D.

KANSAS CITY, MO.

The determination of the specific exciting causes of allergy is of paramount importance because the success of the therapeutic program is dependent upon the accuracy of the etiologic diagnosis.

Skin testing has generally been accepted as the means of determining the allergens to which the patient is sensitive. However, as the knowledge of allergy has increased it has become quite evident that this procedure was not a reliable means of diagnosing the etiologic factors. The result has been that some physicians have discarded testing; others have limited themselves to the use of a selected group of allergens while still others have sought aid in elimination diets.

In view of this apparent diagnostic confusion it would seem that consideration of the nature, value and use of these tests would be of interest at this time.

THE NATURE OF SKIN REACTIONS

There are four types of hypersensitiveness in man, viz.: Atopy or sensitization subject to hereditary influence; contact or acquired hypersensitiveness; drug and serum sickness, and hypersensitiveness of infection. These are collectively called allergy although most physicians refer to atopy when they use the term "allergy." In only the first two forms are the skin tests of definite diagnostic value in the light of our present knowledge and this discussion will be confined to these two allergies.

In the atopic individual it is believed, though not proved, that a group of cells have become sensitive because they have become capable (hereditary influence) of producing

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

specific cellular fixed antibodies.[1] At the same time skin sensitizing antibodies known as blood reagins pass to the skin and because of their affinity for fixed tissue cells, they sensitize the skin. Their concentration in the skin is usually in parallel with the size of the skin reaction especially in respiratory allergy.

Since these antibodies have a marked affinity for fixing themselves to the skin, it is possible to passively sensitize the skin of most normal individuals and thus make indirect tests. This procedure has become known as the Prausnitz-Küstner test.[2]

These localized groups of cells which have become capable of producing antibodies are known as shock organs and one or several of these may coexist, alternate or develop consecutively over a period of time. Coca[3] has explained the occurrence of the clinical manifestations of a sensitization on the basis of an "atopic state" of the various shock organs and not upon the presence of the atopic blood reagins or skin sensitizing antibodies. Therefore it would seem quite logical to assume that there are two types of antibodies: First, the blood reagins which sensitize the skin and, second, the specific cellular fixed antibodies within the organ which make it possible for the shock organ to react in such a manner as to present one or more clinical forms of atopy. Sensitization of the skin and sensitization of the shock organ are two distinct features of atopy and in only certain instances do the two coexist.

Allergy of these localized groups of cells may or may not be permanent. In case it is temporary the skin sensitivity may remain even though the shock organ which created that sensitization has lost its ability to react in such a manner as to present a clinical form of allergy. In this case there will be skin reactions to test substances to which the patient is nonallergic at the time.

Should there be no blood reagins, or if they be present and the skin is unable to fix them in sufficient quantities, a skin reaction will not be obtained even with properly performed tests. Therefore, a sensitization may exist in some shock organ and can be demonstrated clinically without there being any corresponding skin sensitivity.

Reactions may also be obtained to allergens which have never produced symptoms. At a later time it will be found that the patient experiences symptoms from these allergens. Thus, skin sensitivity may precede clinical allergy as well as remain after it has ceased.

If one uses cutaneous tests as a means of determining sensitization of the skin he will find as has Alexander[4] that it varies not only in different areas of the body, the back being more sensitive than the arm, but also in the same area from time to time. In other cases it is an established reaction always present regardless of where the tests are made or the type of extract that is used. In general, clinical symptoms are the most severe in those who exhibit constant cutaneous reactions to specific allergens.

What has just been stated concerning the nature and occurrence of hypersensitiveness to one allergen in the skin and shock organ may also be true for a number of allergens in one or several sites of reaction. These sensitizations may develop simultaneously, alternatively or in sequence. This explains the clinical observation that there usually are skin reactions to numerous allergens and that they exhibit a high degree of specificity for one or more sites of reaction. In the interpretation of skin tests these various possibilities must be given due consideration.

Now, if an allergen or a group of allergens was the specific cause of a certain clinical type of allergy it would materially increase the value of skin testing. However, the symptoms that occur as a result of a sensitization are not dependent so much on the nature of the allergen as upon the location of the shock organ.

Thus, while inhalants, ingesta and contacts usually produce the same general type of symptoms this is not due to their chemical or physical nature as such. The mode of entry and the period and degree of contact have considerable to do with the specificity of an allergen for a certain shock organ and hence to modify the symptomatology. This explains the apparent selective action of some allergens for certain shock organs. The importance of the mode of entry may be illustrated by the patient who has asthma when he inhales wheat flour, but upon ingestion of this same product has eczema and hives. Heredity also plays a definite role in the development of certain shock organs. This effect is seen in the higher incidence of hay fever, asthma or headache in the descendants of persons who showed these manifestations than any of the other types of atopy.

Naturally the allergen capable of reaching the greatest number of shock organs will produce the widest variety of symptoms; as, for instance, food. Inhalants are also absorbed and disseminated through the blood. That the localization of the sensitized cells is more important than the allergen is illus-

trated by the occurrence of eczema due to a product that is eaten, inhaled or contacted.

Testing for the causes of any one manifestation of atopy, for instance eczema in one with hay fever and abdominal allergy, will be confusing because the skin has been sensitized by blood reagins from all three of these shock organs, in all probability. Skin testing in a case of this nature merely indicates some of the etiologic possibilities whose significance must be determined by clinical study. Thus, the determination of the specific effect of any allergen causing a skin reaction is a clinical diagnostic problem. The type of symptoms induced by these different skin reactors is quite specific for each one, the dose being constant.

In general it will be found that inhalants are more frequently the cause of asthma and hay fever while foods are more often the cause of perennial vasomotor rhinitis, hives, eczema and abdominal symptoms.

Clinical dermatoses due to atopy and contact sensitization may be differentiated in the early stages by the distribution of the eruption and its morphologic features. Since this is not always possible in the chronic cases, skin tests are often used to determine the type of allergy as well as the etiologic agents.

In the atopic dermatoses the cells which react on testing are located in the deeper layers of the skin, whereas in contact sensitization they are limited to the most superficial layers of the epidermis. The site of the responsive cells as well as the difference in the immunological mechanism of these two allergies determine the type of testing that will be of specific value. Only scratch and intradermal tests will give significant findings in atopic eczema, while contact or patch tests are to be used in diagnosing the etiologic agents of contact dermatitis.

In interpreting skin tests in eczematous patients an important consideration is that atopy and contact allergy often coexist or that the one has preceded the other. The presence of delayed scratch tests in these patients should always suggest possible contact factors.

Passive transfer cannot be accomplished in cases of contact dermatitis. Eliminative measures are apt to mislead one here because avoidance of foods which give skin reactions may benefit skin eruptions due to contact allergy. White and Traub[6] have reported this effect in such cases and frequently trichophytid and seborrheic eczemas improve with food eliminations made during the course of hay fever treatment.

Thus, the relatively simple diagnostic problem that exists in the case with a skin reaction to only one allergen which is specific for one shock organ may become very complex indeed. It may also become misleading for there are many patients with allergy who are persistently negative to all skin tests and these must be treated entirely upon the basis of clinical observations.

THE CLINICAL VALUE AND USE OF CUTANEOUS TESTING

A perusal of the facts just outlined concerning the immunological and clinical nature of skin sensitivity indicates that skin testing is subject to very definite limitations in diagnosing the etiologic factors.

The probability as to whether or not a patient's symptoms are due to allergy cannot be definitely determined by the tests, because: (a) The skin may be nonsensitive even in the presence of clinical allergy; (b) the skin reactions may be due entirely to a previous allergy; (c) the existence of a sensitivity may not be found because tests were done in a nonsensitive area of the skin; (d) the patient may be nonallergic.

Again, one cannot judge the clinical sensitivity by that of the skin except possibly in seasonal hay fever patients and even then it is only approximate. Neither can one determine the localization of a sensitivity since all the shock organs have the ability to sensitize the skin.

In the last analysis the value of skin testing lies in its average accuracy and the etiologic possibilities that are suggested. The efficiency of the tests varies with the different allergens and in the several types of allergy. It is about 50 per cent accurate in the cases of foods and approximately 85 per cent so with the inhalants. This means that one cannot use skin testing as a sole diagnostic measure but that it should be supported in every case with adequate and well controlled clinical tests. About 5 per cent of the consecutive cases of allergy studied in the office have had complete relief of symptoms with treatment based upon skin reactions alone. Regardless of how many tests are made, what type of test material is employed, or how experienced the interpreter of the reactions, the fact still remains that clinical guidance and study are the most important means of accomplishing results in the treatment of allergy. The interpretation of tests after all covers only a part of the diagnostic problem for there are many patients who never have skin reactions to any of the products responsible for their symptoms.

SKIN TESTING IN HAY FEVER

Skin testing in hay fever has been relied upon to the exclusion of other studies more often than in any other allergy. Therefore it will be discussed at some length.

A patient with hay fever should be tested with all the pollens capable of producing hay fever that are common to his community; with all the animal danders in his environment; all the foods used in his diet as well as the various occupational or trade dusts with which he is in contact. The skin reactors should be evaluated on the basis of the inhalants having about eight chances out of ten and the food reactors about five out of ten chances of being etiologic. In addition there are some allergens, possibly many, that fail to give skin reactions and these will either produce symptoms or complicate treatment.

Seasonal hay fever patients cannot be tested with ten or several hundred extracts and promised a correct diagnosis upon the basis of the tests alone. As in all other allergies there is multiple sensitivity and the confusing interplay of primary and secondary factors which cannot be fully analyzed until the patient is actually exposed to the primary pollen. For this reason the prognosis is always more conservative during the first year's treatment. It is interesting to note in passing that only about 2 per cent of these patients are sensitive to one pollen group and to no other allergens.

It is the dependence upon skin tests alone that leads to practically all failures in the treatment of seasonal hay fever. Eyermann[7] emphasized some years ago the necessity for detailed history taking and the importance of foods in these cases. Our experience coincides with his in that foods are frequently a complicating factor. Failure in the treatment of seasonal hay fever is not attributable to therapeutic principles but to the application of these principles. When the hoped-for results have not been obtained one should look for specific exciting factors which failed to give skin reactions.

SUMMARY

A brief review of the immunological and clinical features of skin sensitivity has been made. It has been shown that skin testing cannot be used as a means of diagnosing the existence, the clinical severity or the localization of an allergy.

Because of the immunological laws governing the occurrence and nature of skin reactions, testing even with correct interpretation is only about 50 per cent accurate with food extracts and 85 per cent so with the inhalants.

The diagnosis of allergy is made by equally important and interdependent studies, skin testing and clinical observation. This problem requires the utmost cooperation of physician and patient over a long period of time. When this is done the results equal or exceed those of any other field of medicine.

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ALLERGY IN INTERNAL MEDICINE: THE ACUTE ALLERGIC ABDOMEN

A PRELIMINARY REPORT

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Acute surgical conditions in the abdomen present sufficient difficulty in differential diagnosis. The addition of allergic reactions within the abdomen which can, and do, simulate symptoms of any disease of the entire gastro-intestinal tract, add greatly to diagnostic complexity. Chronic allergic gastro-intestinal disease of practically every type has been described by numerous writers. Acute allergic episodes in the abdomen have been observed but they are far less common and, as described, are not as a rule easily confused with acute surgical conditions within the abdomen. Lintz[1] in 1925 expressed the opinion that "The absence of abdominal rigidity is a constant and reliable sign in these cases and contraindicates operation." Studies of my own cases recently observed seem to refute his contention.

Alexander and Eyermann[2, 3] have expressed the opinion that the abdominal symptoms of Henoch's purpura are quite similar to gastro-intestinal allergy. Furthermore, they were able to relieve symptoms by withholding suspected foods, and to reproduce these symptoms deliberately by dietary additions. If their assumption is correct and this syndrome is accepted as allergic, as their work, other reports and my own experience indicates, then there is

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a voluminous literature on acute allergic conditions in the abdomen. The type most frequently described is the acute abdominal pain associated with Henoch's purpura.

Osler[4] gives Willan the credit for first describing abdominal pain associated with purpura in 1808 though the picture described by Henoch in 1868 is usually referred to as Henoch's purpura. Osler[5, 6] in 1895 and 1904 wrote "On the visceral manifestations of the erythemata group of skin diseases." He reported that cases 20, 21, 23, 27, 28 and 29 all had colicky pains and case 20 was suspected of having appendicitis. Sutherland[7] in 1904 reported two cases of acute abdominal pain presumed to be intussusception but were actually cases of purpura. In the first case there was definite muscle spasm and rigidity so laparotomy performed. In the second case there was actual invagination of the normal bowel into the distal portion which was paralyzed by hemorrhage. Burrows[8] in the same year operated on an 11 year old boy with obstructive symptoms who had a tender and rigid abdomen. Hemorrhage into the ileum was found and later the patient developed purpura. One month later the abdominal pain was reproduced by eating chocolate. In 1912 Withington[9] made an extensive review of the literature on abdominal pain in Henoch's purpura and added two cases of his own. From his observations he felt that the condition was related to asthma and urticaria. He also quoted Osler as cautioning against laparotomy in purpura and Smith's retort "with the history of two fatal cases of intussusception and one of perforation of the stomach that it did warrant laparotomy and that Henoch's purpura is not entirely a medical disease." More cases of abdominal pain associated with purpura were described by Osler[4] in 1914 and the analogy between serum sickness and erythematous skin diseases was commented on. He apparently thought very definitely that these phenomena were allergic. Christian,[10] writing on the same subject in 1917, reported two cases with abdominal pain similar to that of acute surgical conditions. One case had abdominal pain and muscle rigidity; the other case was suggestive of obstruction and flouroscopic examination with a barium meal revealed a sausage like shadow from a narrowed distal loop of the upper ileum. Examination three days later failed to show this defect. This patient knew he was sensitive to fish and had eaten sadines on the day of his attack of pain. Hunter[11] in 1928 referred to this condition as anaphylactoid purpura and added another case of acute abdominal pain which on exploration proved to be a congested small intestine with numerous dark colored patches under the peritoneal covering, a thickened intestinal wall and irregular areas of muscle spasm throughout its course. Kahn[12] in the following year reported a case of acute abdominal pain accompanied by purpura caused by wheat and onion which was relieved entirely by omitting these articles of diet. Barthelme[13] a year later added another somewhat similar case. Frazier[14] commented on the coincidence of two cases of purpura operated on in one week in 1930, the first case resembling intussusception and the second case resembling acute appendicitis with perforation. Trimble[15] in 1931 reported fifteen cases of abdominal pain associated with erythematous skin diseases; two of them had definite muscle spasm and two had recurrence of symptoms after operation. He concluded that "the recognition of this syndrome is especially important in differential diagnosis of acute abdominal conditions."

Angioneurotic edema of the gastro-intestinal tract is likewise capable of producing acute abdominal symptoms resembling those requiring immediate surgery. Morris[16, 17] was fortunate enough to retrieve a piece of gastric mucosa during lavage in one of his cases and by microscopic examination found it to be markedly edematous. This patient died a year later of edema of the glottis. Harrington[18] in 1905 operated on a woman with angioneurotic edema who had colicky abdominal pains and found free fluid, engorgement of the intestines and edema of the ileum. Briggs[19] in 1908 operated on two women with lower abdominal pain, who were in shock, suspecting ruptured tubal pregnancies and found marked angioneurotic edema of the pelvic organs and abdominal wall. Bogart[20] and Crispin[21] each in 1915 discussed the surgical diagnosis of intestinal angioneurotic edema. In two of Crispin's cases the pains returned after operation while in another case angioneurotic edema of the ileum was found. Bogart's case resembled intestinal obstruction but edema and thickening of the jejunum was discovered at operation. A case of right lower quadrant pain resembling subacute appendicitis and associated with angioneurotic edema as well as other allergic symptoms has recently been described by Vaughn and Hawke.[22] A case of suspected intestinal obstruction in a wheat sensitive patient was described by Efron[23] in 1932.

Acute abdominal pain has been produced accidentally by an overdose of pollen in the process of desensitizing hay fever patients by Duke,[24] Rowe,[25] Eyermann[26] and Cohen.[27] Eyermann[26] also observed the production of abdominal pain in a fish and fish glue sensitive patient who applied court plaster to a skin abrasion. Intradermal test solutions have reproduced intra-abdominal symptoms caused by patients eating the corresponding foods. These observa-

tions have been recorded by Walzer[28] and Cooke[29] and have been observed by the author in one case of gastro-intestinal allergy due to beef and in two other cases sensitive to wheat.

Acute abdominal pain produced by ingestion of a specific food was first described by Smith[30] in a case of buckwheat sensitization. Vomiting and probably colic in an infant inspired the remarkably thorough and painstaking work in 1912 of Schloss[31] who introduced skin testing by means of food proteins in allergic disease. Laroche-Richet and Saint Girons[32] in 1919 described major gastro-intestinal manifesations of allergy from specific foods. Duke[24] reported six cases of severe abdominal pain due to specific foods in 1921. One case of his series had a rigid abdomen associated with pain. Andreson[33] described obstructive symptoms due to food allergy in 1926. Eyermann's[26] wheat sensitive case (1927) developed pain similar to cholecystitis after the ingestion of whole wheat. Cooke in 1928[29] and again in 1929[34] described cases of acute abdominal pain due to specific foods. The first case, seen in 1916, had attacks of acute abdominal pain all her life due to the ingestion of milk. An exploratory operation had been done previously without relief. Rowe[35] in 1931 suggested that obstructive symptoms might be produced by food allergy and described a case of suspected perforated peptic ulcer in which laparotomy was done. No abnormalities were found at the operation but later the patient's symptoms were traced to wheat. Gay[36] in 1932 described a case of recurring acute abdominal pain due to wheat in which three exploratory operations had been done previously with no relief of symptoms.

The following cases are instances of acute abdominal pain produced by the ingestion of food.

REPORT OF CASES

Case 1. Mrs. S., aged 39, housewife, first examined in June, 1930, when the patient complained of recurrent attacks of pain in the left lower quadrant of the abdomen of twelve months' duration. The pain came on suddenly and persisted until several enemata had been taken. She also complained of attacks of severe episgastric pain after dietary indiscretions apparently unrelated to the pain in the left lower quadrant. The attacks of episgastric pain had been experienced for years induced by unwise choice of food and relieved by hot applications over the upper abdomen and by belching. The bowels had always been regular and normal without the use of carthartics. Cesarean section had been performed 8 years previously because of a contracted pelvis and she had a chronic sinusitis which required much treatment. Her history otherwise was unimportant. There was neither personal history nor family history of allergy. The skin was dry but smooth, the nostrils clear but the mucosa was grayish in color and there was a slight excess of discharge. The thyroid gland was not palpable. The heart and lungs were normal. The abdomen presented a postoperative lower midline scar and 1° tenderness along the entire course of the colon. Proctoscopic examination was negative except for a reddened mucosa. Gastro-intestinal fluoroscopic examination and barium enema revealed a markedly spastic colon. A diagnosis of gastro-intestinal allergy was made and the patient was put on a diet which eliminated chocolate, coffee, orange, pork, condiments and potato. This gave her complete abdominal and nasal relief for two years. On January 8, 1932, shortly after breakfast she experienced a severe cramping pain in the lower abdomen which doubled her up and later became localized in the right lower quadrant. She came in for examination about six hours after the onset of illness. There was no nausea or vomiting. The temperature was 99° and upon examination of the abdomen there was definite tenderness and definite muscle spasm and rigidity over the right lower quadrant of the abdomen in the region of McBurney's point. The leukocyte count was 8600. The patient was urged to go to a hospital but refused. She then recalled eating the first orange for breakfast that she had taken in two years. She was advised to go home and apply cold compresses to her abdomen. In a few hours she reported by telephone that the pain had subsided and that she was comfortable. A subsequent fluoroscopic examination visualized a well filled appendix lumen but no tenderness over the appendix or the base of the appendix. Tenderness of 1° was demonstrated over the proximal portion of the ascending colon. By purposeful feeding of a small amount of orange juice a similar attack of pain was reproduced.

Case 2. Mr. R., automobile dealer, aged 46, was seen in consultation because of a suspected perforated duodenal ulcer. Thirty minutes after his evening meal the patient experienced an epigastric pain which soon became violent and persisted after vomiting. The pain was so severe that the patient called his physician for immediate relief. This physician reported that on examination he found the patient in shock, in severe pain, covered with perspiration, had a rapid pulse and board like rigidity of the muscles of the upper abdomen. Pressure in the epigastric region increased the pain markedly. One quarter gr. morphine sulphate and 1/150 gr. atrophine sulphate were given. As a perforated duodenal ulcer was suspected the patient was sent by ambulance to St. Luke's Hospital for immediate exploratory operation. The patient was examined by the two of us two hours after the onset of pain and about one hour after the morphine had been given. The temperature was 96°, the pulse then 64, respiratory rate 18 and although the patient was still suffering the pain had been greatly reduced. Examination of the abdomen showed an extraordinary board like rigidity of the muscles in the epigastrium and exquisite tenderness on deeper palpation. The leukocyte count was 5800. A few minutes later on returning to the patient's room to reexamine him he was found to be squirming in bed and scratching himself. He had developed an intense urticaria which made the diagnosis of an acute allergic condition in the abdomen clear. There had been no previous similar atacks but he had been operated on in June, 1927, for chronic cholecystitis and chronic appendicitis. He had been constipated all his life and habitually used cathartics. It was discovered later that two sisters had food idiosyncrasies and were subject to gastro-intestinal disturbances of a similar nature. A few days later the patient was given cutaneous tests and his skin reacted strongly to many foods. The evening meal preceding his attack consisted of filet of sole with tartar sauce, baked potatoes, green peas, stewed corn, lettuce and tomato salad, chocolate ice cream and coffee, to all of which he reacted very strongly by test. He has declined to reproduce his symptoms but on a

careful diet there have been no recurrences of pain and he is troubled very little with constipation.

Case 3. Mr. B, aged 40, school teacher, was seen in consultation on January 9, 1934. On January 8 about 10 a. m. he began to have an agonizing pain in the lower abdomen which increased in severity and produced a desire to defacate. He had a normal bowel movement but no relief from pain. By midafternoon the pain was so severe that he called to see his physician who gave him some powders to take but the pain steadily increased. He was nauseated at dinner time and did not eat. About an hour after his usual dinner time he vomited. Later in the evening he called his physician who told him he had a temperature of 102° and gave him a hypodermic injection to ease the pain. He was able to sleep a little but was awakened in the early morning by pain. His physician found he had a temperature of 101°, a leukocyte count of 17,000 and advised hospitalization and exploratory operation. Operation was refused and consultation was requested. At 5 p. m. when seen by me the patient was evidently in pain but did not look toxic. He described his pain as constant with acute exacerbations starting in the umbilical region, gradually increasing in severity to a peak, then being referred down the left side of the abdomen and slowly being partially relieved. There had been no bowel movement since the preceding day but small amounts of flatus had been passed. The abdomen was greatly distended and perfectly rigid throughout with much tenderness in the right and left lower quadrants. Deep palpation in either region reproduced the cyclic pain. The pelvic colon was palpable, spastic and exquisitely tender. By following the course of the descending colon up the left side of the abdomen to the splenic flexure and exerting pressure it was found that the cylic pain again could be reproduced. The transverse colon could not be palpated owing to muscle rigidity. It was noted that the patient had a very hyperactive skin. His temperature was 100.4°, pulse 96 and the leukocyte count 12,500. To rule out intestinal obstruction an open roentgen ray film of his abdomen was taken and found to be negative except for much gas. To rule out diverticulitis of the sigmoid a barium enema was suggested and the ascending and distal half of the transverse colon was slowly but painfully canalized. The film of the opaque enema showed a very spastic colon but no other abnormalities. On close questioning suggested by the hyperactive skin the patient gave a history of urticaria 6 years previously from bananas; nausea, vomiting and diarrhea in childhood and early adult life whenever he ate pork. He also stated that he had eaten a quantity of fresh pork sausage the evening preceding the attack of pain. There was a strongly positive allergic history in two sisters but none in any other members of his family. Adrenalin was recommended because the allergic history, the ingestion of pork and a falling temperature and leukocyte count with no relief of pain suggested an acute allergic condition in the abdomen rather than an acute surgical condition. The suggestion was rejected and ¼ gr. morphine with 1/100 gr. atropine was given as a compromise. The patient was seen again the following morning and though greatly improved still had the recurring cycles of pain in a lesser degree. As rigidity had disappeared the entire colon could be palpated and was tender throughout its course. A proctoscopic examination was done. The mucosa of the rectum and pelvic colon was a shiny red and coated with glistening mucus. There were no ulcerations or points of hemorrhage. Smears of the mucus were taken, dried and stained with hematoxylin and eosin. The stained smears of mucus contained large numbers of eosinophiles. Adrenalin was again advised, administered and gave relief from pain but produced a headache. Ephedrine sulphate was given by mouth and kept the patient comfortable. He made an uneventful recovery. Since that time he has again experienced the same sensations in his abdomen after eating baked beans cooked with pork. The second attack was much less severe.

Fig. 1. Case 3. Film of barium enema taken during attack of pain showing spasm and irritability of colon, and large amount of gas.

Fig. 2. Case 3. Film of barium enema taken after recovery showing complete canalization of entire colon.

Pain of this type is believed to be produced by edema of a visceral organ, as a whole or in part, by hemorrhage into an organ or by spasm of smooth muscle fibres. Instances of edema, hemorrhage and spasm have been cited. Ecker and Biskind[37] recorded the reaction of the rabbit's intestine during anaphylactic shock and found peristaltic rushes and localized spasms of variable degrees. The character of abdominal pain and the physical examination of the pork sensitive case appears to be very similar to their observations and can possibly be explained on the same basis. Bissett[38] feels that allergic enterospasm can be explained in this fashion, while Hunter's[11] case appears to be a direct demonstration of the phenomenon.

The differential diagnosis of an acute allergic condition in the abdomen can offer considerable difficulty. Crispin's[21] opinion is that an acute allergic condition in the abdomen does not resemble an acute surgical condition in the abdomen in every detail. Andreson[33] mentions the recurrence of symptoms at irregular intervals, the association of symptoms with an obvious allergy or the occurrence of symptoms after an unusual food as diagnostic points. Rowe[35] thinks if acute abdominal pains are not relieved by adrenalin they are probably not due to allergic disease and therefore exploratory operation is indicated. Cooke[34] stresses the past history of allergy, the association of symptoms with an obvious allergy and extra-abdominal symptoms. He also mentions the point illustrated by the pork sensitive case that the temperature and leukocyte count cannot be depended upon in making a differential diagnosis. The cases cited illustrate points mentioned by practically all writers on this subject. Case 1, a known allergic, had had similar but less severe left-sided pain previously and had taken the specific food shortly before the onset of pain which produced a clinical picture of subacute appendicitis. The known history of allergy was of distinct value in diagnosis. The second case had no previous history suggestive of ulcer but peritonitis from a perforated asymptomatic ulcer is not unknown. Fortunately an urticarial eruption immediately established the diagnosis. The third patient though very ill and in great pain did not have the toxic appearance usually seen in peritonitis. The facies were more characteristic of pain than of infection. The two exquisitely tender areas over the cecum and sigmoid and the reproduction of cyclic pain by pressure over the splenic flexure suggested involvement of the entire colon rather than a localized area impaired by obstruction or infection. The hyperactivity of the skin, which on slight stroking produced a spreading erythema similar to an urticarial wheal, suggested inquiry for an allergic background. From the history it was learned that this patient had taken a specific food known to have caused immediate gastro-intestinal reaction throughout childhood and early adult life. After a long period of abstinence he had eaten freely of a known offender. Though the barium enema was a real punishment it definitely ruled out diverticulitis and a low obstruction. Furthermore twelve hours after the first examination muscle spasm and distention had subsided sufficiently to permit complete palpation of the colon. Its definite tenderness and spasm and the demonstration of eosinophylic leukocytes in the mucus of the lower bowel confirmed the original impression of acute allergy in the abdomen. Passive transfer of sensitivity was attempted in this case and successfully carried out. Passive transfer and accidental reproduction of identical symptoms constitute proof that the syndrome was of allergic origin.

Chronic gastro-intestinal allergy occurs with much more frequency than is generally suspected and there is probably a corresponding incidence of the acute type as yet only occasionally recognized. Abdominal pain, temperature elevation, leukocytosis and muscle rigidity can be produced by a food sensitization and in the presence of an obvious allergy, an allergic history, or extra-abdominal symptoms this possibility should be considered.

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DISCUSSION

Dr. Hudson Talbott, St. Louis: The subject of allergy has become intensely interesting to me by virtue of a case that I shall recite to you. The doctor mentioned many cases operated upon, but I wish to emphasize what he had to say by a case upon which I operated.

A doctor friend of mine gave a history of repeated attacks of abdominal pain. I was lunching with him one day when the pain struck him very suddenly. I examined him and told him I believed he had gallbladder disease, gall stone colic. This was quite a few years ago and we had not then the knowledge of allergy that we have today. To make the story brief I took him to the hospital and operated on him removing a single stone. In those days we were not routinely removing the gallbladder so I drained it. The doctor made an uneventful recovery and went home feeling fine. He remained well for quite a long time, perhaps three years. This man had been raised on a farm and had eaten chicken all his life. So far as he knew he had no trouble from that particular food. But he returned with symptoms that I thought showed reformation of gall stones and I operated on him again. I found no stones but removed the gallbladder, but his pain continued and it was terrific. His case was studied, and the final conclusion was that the ingestion of chicken caused these pains.

THERAPY OF COOK COUNTY HOSPITAL

Bernard Fantus, Chicago (Journal A. M. A., June 23, 1934), in the article on therapy of rheumatic fever as it is practiced by the attending staff of the Cook County Hospital, discusses prophylaxis and treatment, gives a number of the prescriptions used, and concludes by saying that relapses may be prevented by the measures described for prophylaxis. Tonsillectomy is to be considered, but not until the patient has completely recovered, and then only if the tonsils are definitely diseased.

HIGH PROTEIN AND HIGH POTASSIUM DIET IN THE TREATMENT OF OBESITY

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It has long been recognized that water balance plays a most important role in obesity. Every physician who has dealt with the problem has been confronted by the patient, who in spite of a rigorous dietary régime far below the calculated caloric requirement, reached a certain weight level and remained stationary. The common assumption when this situation occurs is that there is a disturbance of the water balance with a general retention of fluid in all the tissues. Obviously a dehydration, dietary and diuretic régime should aid in the solution of such a problem.

Barker* has pointed out in his experimental work on dogs, that had been bled to the point of hypoproteinemia, that he could control their weight at will by the substitution of sodium and potassium salts in the diet. This he also confirmed in nephritic patients.

In a recent unpublished case of ascites we were able to control the patient's weight over nine months by giving 4 gms. of potassium chloride daily with a high protein, low sodium, acid ash residue diet. Periodic blood protein determinations upon our patient constantly showed an inverse albumin-globulin ratio with a low total protein content. In spite of these persistent findings we were able to control the patient's weight and prevent the recurrence of ascites by substituting potassium chloride for sodium chloride, and giving a high protein, acid ash residue diet. Because of these observations it occurred to me that such a dietary régime would be helpful in the management of simple obesity refractory to the usual dietetic régime.

The following diet containing 100 to 120 grams of protein, 60 grams of carbohydrate and 40 grams of fat, with an approximate total of 1000 calories was used.

HIGH PROTEIN, LOW CALORIC, ACID ASH DIET

BREAKFAST—
1 serving fruit
2 eggs
1 slice whole wheat bread 3½″ by 2⅝″ by ½″
Coffee with saccharin and 2 tablespoons skimmed milk if desired

LUNCH—
Veal cutlet, one piece 6″ by 4″ by ½″, or
2 veal chops, or

I am deeply indebted to Miss Dorotha Olsen, St. Louis, for her assistance in the preparation of the detailed diet.

* Barker, Herbert M.: Edema as Influenced by a Low Ratio of Sodium to Potassium Intake, J. A. M. A. **98**:2193 (June 18) 1932.

Lean round steak, one piece 4″ by 3″ by ¾″, or
⅔ cup ground lean beef, or
⅔ cup sweetbreads, or
Calf liver 4½ slices 2″ by 3″ by ¼″, or
3 pair frog legs, large, or
1½ pieces fish 4″ by 3″ by ½″
Broil these meats with mineral oil
1 serving vegetable

Salads—
1. Hard cooked egg (one)
2. Cottage cbeese, ¼ cup
3. Vegetable salad; if tbis salad is selected, add ¾ cup broth to this meal. Serve salad on 3 lettuce leaves with mineral oil dressing. Make dressing by using your favorite French or mayonnaise recipe, substituting mineral oil for salad or olive oil, and potassium chloride for table salt

1 serving fruit
¾ cup skimmed milk or skimmed buttermilk

DINNER—
¾ cup broth or jellied broth
Roast veal, lean beef, chicken, turkey or lamb 2½ slices 4″ by 4″ by ⅛″
1 serving 5 per cent vegetable
Vegetable salad with 3 lettuce leaves and mineral oil dressing
1 serving 10-15 per cent fruit
¾ cup skimmed milk or skimmed buttermilk

1. Eat nothing that is not on diet list.
2. Do not use citrus fruit oftener than once daily; better to omit entirely.
3. Do not use fats in cooking. Mineral oil may be used.
4. Do not use table salt in cooking or on food.
5. Do not take any alkaline medicine as sodium bicarbonate.
6. Limit fluid to 7 cups ¾ full daily, including liquids consumed with meals.
7. Do not eat foods canned with salt.

This diet proved much more acceptable to my patients than the usual low caloric diet because it gave them a sense of satisfaction after eating, and they were enthusiastic about the results obtained after having taken the usual subnormal caloric requirements for long periods. The patients were allowed 4 gms. of potassium chloride daily to be used in cooking or as a seasoning at the table. A few were also given 2 or 3 grams of ammonium nitrate daily to facilitate diuresis. A brief summary of the seven cases follows:

SUMMARY OF CASES

(1) Mrs. E. M., aged 60, diagnosis, hypothyroidism (mild). (2) Dermatitis vegetans. (3) Obesity: This patient had been on a maintenance dose of thyroid and a diet under 1000 calories for one year. The weight had been stationary for four months on this régime. On a high protein diet with potassium chloride and 3 gms. ammonium nitrate daily, the weight decreased from 234 pounds to 202 pounds, a total loss of 28 pounds in five months.

(2) Mrs. D. H., aged 38, diagnosis, hypothyroidism (mild). (2) Hypo-ovarianism (mild) postoperative. (3) Obesity: The weight had been stationary for one year on a maintenance dose of thyroid and a low caloric diet. On a high protein diet with potassium chloride this patient's weight decreased from 170 pounds to 146 pounds, a total of 24 pounds in 3½ months.

(3) Mrs. W. H., aged 50, diagnosis, diabetes mellitus (mild). (2) Obesity: The weight had been constant on a diet of carbohydrate 60 gms., protein 60 gms., fat 120 gms. for two months. On a high protein, potassium chloride régime her weight decreased from 248 pounds to 240 pounds, a total of 8½ pounds in eight weeks.

(4) Mrs. F. W. N., aged 35, diagnosis dyspituitarism. (2) Obesity: This patient had been on a diet well under 1000 calories for two years with a slight gain in weight. The basal metabolism was normal but because of the extreme lassitude this patient was given 2 grs. of thyroid daily with her high protein diet. She was also given 4 gms. of potassium chloride daily. Her weight decreased from 201 pounds to 184 pounds, a total of 17 pounds in 6 weeks. She was tremendously improved generally.

(5) Mrs. O. L., aged 43, diagnosis, hypothyroidism (mild). (2) Obesity: This patient had been on a diet of 1000 calories and maintenance dose of thyroid for two years. Her weight had been constant during the entire period with an immediate gain if she varied from her diet. On the above régime her weight decreased from 157 pounds to 148 pounds, a total of 9 pounds in four weeks.

(6) Mrs. H. V. M., aged 60, diagnosis, dyspituitarism. (2) Obesity. (3) Chronic Constipation: On a high protein diet with potassium chloride 4 gms. daily, this patient's weight decreased from 179 pounds to 162 pounds, a total of 17 pounds in eight weeks.

(7) Mrs. W. F. A., aged 26, diagnosis, dyspituitarism. (2) Obesity: She had been on a low caloric diet for several months with her weight stationary. On the outline régime her weight decreased from 135 pounds to 124 pounds a total of 11 pounds in four weeks.

The diet was exceptionally well tolerated by all the patients and the average weight loss was slightly more than two pounds weekly. After several weeks if they complained of the large amounts of protein in the diet this was gradually reduced and they were given an unrestricted meal once weekly. When the desired weight level was reached the diet was made much more liberal but the sodium content kept low and the protein relatively high. None of the patients manifested any toxic symptoms from the potassium chloride and all of them stated that their appetites were entirely satisfied by the diet.

CONCLUSIONS

1. On the basis of seven cases it was concluded that some cases of obesity, refractory to the usual therapeutic measures, would lose weight rapidly on a high protein, low sodium, acid ash residue diet with potassium chloride substituted for sodium chloride.

2. This régime is well tolerated and the sensation of hunger and fatigue often present when giving the usual low caloric diets was not encountered.

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THERAPY OF COOK COUNTY HOSPITAL: THERAPY OF THE MYCOSES

Bernard Fantus, Chicago (Journal A. M. A., Sept. 15, 1934), discusses the therapy of the mycoses as it is carried out by the attending staff of the Cook County Hospital; he considers the treatment of tinea versicolor and erythrasma, trichophytosis (ringworm), blastomycosis, sporotrichosis and actinomycosis. A number of prescriptions are given for the foregoing types of mycoses.

THE BLOOD PLATELET COUNT IN POSTOPERATIVE THROMBOSIS

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The relationship of the blood platelet count to thrombosis after operation and parturition has been frequently discussed in the literature. In discussing this question it is necessary to consider first the theories of the origin of the blood platelets. Wright[1] believes that blood platelets arise from broken off fragments of the megakaryocytes in the bone marrow. Bedson[2] and Bedson and Johnston[3] believe the platelets are derived from the marrow. Schilling[4] and his followers believe that blood platelets represent the remains of extruded nuclei of red blood cells. There is no unanimity of opinion among hematologists on this point. Duke[5] and others have shown that toxic substances such as benzol and roentgen rays and bacterial toxins which are known to depress the marrow cause a reduction in the platelet count. In aplastic anemia and lymphatic leukemia there is a reduction in the platelet count. In myeloid leukemia there is a very high blood platelet count. Minot[6] and Sabin[7] claim to have found megakaryocytes in the circulating blood in this condition. Cole,[8] Ledingham and Bedson and Lee and Robertson[10] proved that the platelets act as a specific antigen and give rise to a specific antiserum. The presence of blood platelets in the earliest stage of clotting within the vessels has been shown by Bizzozero,[11] Welch[12] and Aschoff.[13] For a long time it has been conjectured that platelets are intimately concerned with the coagulation of the blood whether within or without closed vessels. Spontaneous clotting cannot occur without platelets or their disintegration products; this whole subject has been reviewed by Pickering.[14]

Reviewing the physiology of clotting, we note that soluble fibrinogen is converted into insoluble fibrin. Bizzozero,[11] in 1882, showed the clumping together of the platelets and that the subsequent appearance of strands of fibrin radiated from the clumps. Morawitz[15] thought the source of prothrombin was the blood platelets. Prothrombin is a substance which, when activated by thrombokinase derived from the tissues, in the presence of calcium salts gives rise to a ferment (thrombin) which converted fibrinogen into fibrin.

Gichner[16] found that if citrated normal human blood were recalcified clotting again occurred; if the citrated blood were filtered through charcoal which removed the platelets, no clotting occurred on recalcification. Lee and Vincent[17] by differential centrifuging of oxalated plasma obtained samples with progressively diminishing platelet content. On recalcification they found the rate of coagulation varied directly with the platelet count. They found that the platelets are not themselves essential for clotting but concluded that without platelets or an extract of them coagulation could not occur.

In hemophilia, in which there is a tendency to localized coagulation defect, there is a qualitative abnormality of the platelets whereby their prothrombin is liberated slowly. We can, therefore, conclude that in vitro platelets are intimately connected with the appearance of fibrin; second, in the absence of platelets or an extract of them no clotting occurs and, third, where the platelets are qualitatively abnormal clotting is also abnormal.

In intravascular clotting the conditions and mechanism are different. Welch[12] and Aschoff[13] showed that in the so-called static thrombi found in the veins of the lower limbs, cerebral sinuses and the auricles the first step in the formation of a thrombus is the adhesion of masses of platelets to the vessel wall. With sufficient slowing of the blood stream the peripheral blood column rapidly clots forming a red portion of the clot composed of a mass of red cells, white cells, platelets and fibrin. Platelets adhere to the walls in intravascular clotting. While injury to the intima may cause this, such injury has never been shown in the static thrombi. Wells[18] states that numerous studies on the relationship of the platelets to disease conditions have indicated a certain parallelism between their numbers and the tendency to coagulation observed in the various diseases. Hittmair[19] states that in cases of thrombosis, increased by constitutional, posthemorrhagic, postinfective, postoperative and other causes of thrombocytosis, an increased tendency of the blood to thrombosis can be shown and, on the other hand, in thrombocytopenia a lengthening of coagulation time is seen.

In order to determine whether there was diminished coagulability in cases with a low blood platelet count, Dawbarn, Earlam and Evans[20] examined cases of purpura hemorrhagica, pernicious anemia, acute leukemia, aplastic anemia, splenic anemia and von Jaksch's anemia. Some of these cases had been splenectomized and blood platelet count and coagulation time were ascertained. They showed that in cases with a blood platelet count below a certain level (100,000) there was a slight delay in the clotting time as compared with that of the normal control. There was also a marked failure of clot retraction, much more parallel to the platelet counts than was the coagulation time. In

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cases of purpura the platelets fluctuated normally and clotting time and clot retraction were normal. These same writers studied fifty cases operated on in the Royal Infirmary, Liverpool, to determine the number of blood platelets and the rate of coagulation after surgical operations. They showed that in general there was a postoperative rise in the platelets first manifested on the sixth day and reaching a maximum in about ten days. The rise persists for a further few days. Observations made in the third week and onward showed normal counts. The degree of the rise apparently was related to the severity of the operation but varied in different patients subjected to the same operation. They also showed that after operations or childbirth and after cesarean section the number of platelets in the blood began to rise on the fourth day, reached the maximum on the tenth day and thereafter fell slowly to the normal level. They noted a diminution of the blood platelets in association with an increase of blood coagulation time, and an excess of platelets with a shortening of the blood coagulation time. So far as time relationship of clinical thrombosis and embolism were concerned, they found they were very similar to those of the platelet reaction; they were most frequent about the tenth day after operation or childbirth. They showed that platelets showed no change after simple hemorrhage, anesthesia, lying in bed and no constant variation in sepsis. They also noted in the fifty cases studied that the blood platelet reaction was excited by fractures and similar rises occur in convalescence from acute lobar pneumonia. The suggestion was made that the feature which was common to the various stimuli was tissue injury and the absorption of broken down products. In purpura hemorrhagica their counts of platelets ran as low as 18,000 and as high as 287,000; in pernicious anemia, from 34,000 to 110,000; in acute leukemia, from 25,000 to 90,000; in splenic anemia, from 42,000 to 232,000; in anaphylactoid purpura, from 374,000 to 724,000, and in hemophilia, from 303,000 to 713,000.

Hueck[21] in a report of a hundred cases showed that after surgical operations the platelet count showed a definite behavior. During the first few days there was a slight fall in number followed toward the end of the first week by a rise reaching a maximum about the tenth or twelfth day and then returning to normal. This rise was roughly in proportion to the severity of the operation or in relation to the degree of tissue damage. Thus it can be seen that Hueck, without any knowledge of work done by Dawbarn, Earlam and Evans, reported almost identical observations.

In addition to those contributions we have an interesting report by Brock[22] entitled "Post Operative Venous Thrombosis and the Platelet Count." He reported a case which he observed in St. Louis at the Barnes Hospital under Drs. Graham and Singer where counts were made in order to study the effect on the platelet count of any exacerbation of the disease following the operations of phrenicectomy and thoracoplasty for pulmonary tuberculosis.

One patient, a case which he reported, aged 49, had a normal count. A left-sided phrenic evulsion was performed and led to a slight febrile reaction accompanied by a slight rise in the platelet count. The first stage of a posterior, extrapleural thoracoplasty was performed followed by initial fall then by a rise commencing about the seventh day and reaching its maximum on the chart on the thirteenth day. On the sixteenth day the count was 448,800 per c. mm. when the patient noticed stiffness in the left thigh and calf, pain in the leg and a small, firm clot could be palpated quite easily over the great saphenous vein in the middle of the thigh. The platelet count continued to fall and soon reached low figures once more; the phlebitis followed a normal course without embolism.

The coincidence of the onset of thrombosis and the maximum postoperative rise in the platelet count led Brock to the conclusion that there is a close causal connection between the two.

While admitting that there are certain conditions variable to thrombosis, Brock suggests a possible line of treatment to prevent it; namely, to find a substance or means which would prevent or diminish the normal postoperative increase in platelets.

In an attempt to determine, if possible, the behavior of the blood platelet count after operations and parturition the authors undertook a series of examinations or blood platelet counts at the St. Louis County Hospital during the last winter. Forty cases in all were studied including twelve herniotomies, two cholecystectomies, fourteen pregnancies, four miscellaneous operations, one hemorrhoidectomy, five hysterectomies and two normals.

The method of counting blood platelets used in this study was that of Fonio, which is as follows:

Reagents: 14 per cent magnesium sulphate. Dissolve 14 grams magnesium sulphate in 50 cc. distilled water. Dilute to 100 cc. with distilled water.

Dilute Giemsa stain. Dilute the Giemsa stain by adding 2 drops of Giemsa stain to every 1 cc. neutral distilled water.

Technic: Cleanse the patient's finger with ether. Place 1 drop of 14 per cent magnesium sulphate on the tip of the finger. Puncture through the magnesium sulphate. Allow the blood to ooze out and to mix with the magnesium sulphate until a mixture of about 1 part of blood to 9 parts of magnesium sulphate is obtained. Mix by means of the puncture

point. Pick up a drop of the mixture and place on a slide. Draw out with a cover glass in the manner of making a blood smear. Allow to dry quickly. Fix in methyl alcohol for 5 minutes. Dry in the air. Stain for 1 hour with dilute Giemsa stain (2 drops to every cc.). Wash with neutral distilled water and dry. Count all the erythrocytes and blood platelets in consecutive fields until 250 erythrocytes have been counted. Count four such fields in the manner of the four-field meander method. Calculate the number of blood platelets in 1 c. mm. of blood by the following formula:

Patient's red count ÷ 1000 × number blood platelets counted = number blood platelets in 1 c. mm. blood.

Example: 1000 red blood cells counted; 65 blood platelets counted. Patient's erythrocyte count 5,000,000. Then 5,000,000 ÷ 1000 × 65 = 325,000 blood platelets in 1 c. mm. blood.

The following tabulated counts of the herniotomies, obstetrical cases and hysterectomies are given:

AVERAGE DAILY PLATELET COUNTS FOR TWELVE CASES OF HERNIA

First postoperative day	220,780
Second postoperative day	293,425
Third postoperative day	338,678
Fourth postoperative day	336,720
Fifth postoperative day	513,925
Sixth postoperative day	345,272
Seventh postoperative day	320,435
Eighth postoperative day	587,030
Ninth postoperative day	402,911
Tenth postoperative day	465,943
Eleventh postoperative day	379,051
Twelfth postoperative day	457,434
Thirteenth postoperative day	608,450
Fourteenth postoperative day	559,217
Fifteenth postoperative day	245,510

AVERAGE DAILY PLATELET COUNTS FOR FOURTEEN OBSTETRICAL CASES

First post delivery day	228,694
Second post delivery day	299,745
Third post delivery day	278,707
Fourth post delivery day	305,400
Fifth post delivery day	360,870
Sixth post delivery day	345,800
Seventh post delivery day	337,219
Eighth post delivery day	287,384
Ninth post delivery day	317,355
Tenth post delivery day	361,085

AVERAGE DAILY PLATELET COUNTS FOR FIVE CASES OF HYSTERECTOMY

First postoperative day	131,732
Second postoperative day	199,748
Third postoperative day	208,322
Fourth postoperative day	266,606
Fifth postoperative day	213,028
Sixth postoperative day	322,896
Seventh postoperative day	272,444
Eighth postoperative day	312,145
Ninth postoperative day	409,600
Tenth postoperative day	390,480
Eleventh postoperative day	260,400
Twelfth postoperative day	187,200
Thirteenth postoperative day	84,000
Fourteenth postoperative day	421,200

The following comparison in which the highest platelet counts were found among the hysterectomy, cholesystectomy, herniotomy and obstetrical cases speaks for itself.

TYPE OF CASE	PEAK OF COUNT
1. Cholecystectomy	1,170,960
2. Obstetrical	621,600
3. Herniotomy	1,931,400
4. Hysterectomy	847,880

CONCLUSIONS

It is evident that in the normal individual there is very little change in the blood platelet count from day to day. The normal figure, around 250,000, goes up possibly to 350,000 or 375,000 and then returns to normal.

It is also evident that after certain types of operations such as herniotomy there is a definite increase. It is to be noted that on the fifth postoperative day after herniotomy the count was around 500,000; on the eighth day, around 600,000; on the thirteenth day around 600,000, and on the fifteenth day it had returned to normal.

With respect to hysterectomy, note that the rise came up to 300,000 on the sixth postoperative day, to 400,000 on the ninth postoperative day, and then in an irregular way returned to normal. In the hysterectomy cases studied the rise went up gradually to the sixth postoperative day from 150,000 to 300,000, and reached its highest figure of 400,000 on the ninth postoperative day, dropped by the thirteenth day to 84,000 and rose again on the fourteenth day to 400,000.

In single cases we find that the highest single rise in any case was on the thirteenth postoperative day after herniotomy when the count went to 1,920,000; the highest count in cholecystectomy occurred on the ninth postoperative day attaining the figure of 1,180,000. The highest figure in hysterectomy occurred on the seventh postoperative day, going to 860,000.

This study showed that in herniotomies there is a uniformity in the rise of blood platelets in the postoperative period. Since postoperative venous thrombosis seems to occur at times following a herniotomy this rise in blood platelets in this condition may have some relationship to this accident. However, the fact that we have rises in blood platelets in the postoperative periods of other conditions makes us give pause in drawing conclusions about this possibility.

In general, our observations coincided rather well with those cited in the literature.

Further study of this problem may perhaps serve to give information which will be of value in combating that inexplicable nightmare of the surgeon, postoperative venous thrombosis.

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RESUSCITATION

Yandell Henderson, New Haven, Conn. (Journal A. M. A., Sept. 8 and 15, 1934), points out that the conditions to which resuscitation applies are all essentially forms of asphyxia. They included drowning, electric shock, asphyxia of the new-born, carbon monoxide, morphine, cyanide and alcohol poisoning, anesthetic and postoperative depression, pulmonary edema and hemorrhage. For brief complete asphyxia, involving failure of breathing, the principal measure of resuscitation is artificial respiration, reinforced by inhalation of carbon dioxide and oxygen. For prolonged asphyxia, inducing coma with depression of breathing, the principal measure of resuscitation is inhalation of carbon dioxide and oxygen, initiated, when needed, by artificial respiration. The various forms of apparatus for treatment of asphyxia are evaluted. Artificial respiration apparatus of the laboratory type should be available in the operating room. But such apparatus is not suitable for general use by laymen. Outside the operating room and the hospital, reliance should be placed on inhalators and the Schafer prone pressure method of artificial respiration. The theory of asphyxia now generally accepted in the medical sciences is inconsistent with the facts of resuscitation established clinically. If the condition now called "acidosis" were really acid poisoning, inhalation of carbon dioxide would further poison the victims of asphyxia. The fact is, on the contrary, that carbon dioxide combined with a supply of oxygen has proved to be the specific cure for asphyxial "acidosis." For further progress in resuscitation and in related problems of clinical physiology the development of a sound theory of asphyxia, and of "acidosis," or acarbia, is urgently needed.

SPECIAL ARTICLE

CANCER SURVEY OF MISSOURI

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A marked change has taken place in the attitude of the medical profession toward the cancer problem during the last few years. Thirty years ago little thought was given generally to early diagnosis and early treatment because cases were so seldom seen and recognized in these early stages that they excited no special interest.

As the cancer problem was studied more intensively in the laboratory and clinically it was found that many cases responded to adequate therapy and there was hope and considerable assurance that cures could be expected if patients were seen sufficiently early.

An increasing interest in research was stimulated by the discovery of the therapeutic properties of roentgen rays and radium. This opened an entirely new approach to the diagnosis and treatment of cancer. Types of maligancy formerly considered hopeless were found to be responsive to radiation therapy to the extent of making such patients comfortable over a much longer period than they had enjoyed previously or of curing them. This stimulated further research in fundamental problems and such investigations are now being followed and extended widely. Laboratory investigation into etiological and related factors has advanced further than similar studies in clinical problems. The unknown etiology and relatively small percentage of known cures compared with the number of patients treated make cancer one of the greatest challenges to medical science today. As a result of the increased knowledge an added interest in the whole field of malignancy is being shown by professional and lay groups.

While certain facts are known about the cancer problem in general, there is a great paucity of information about specific phases of the question. This information is lacking especially as to facilities available for adequate diagnosis and treatment, where such

Survey made by the American Society for the Control of Cancer at the request of the Missouri State Medical Association upon recommendation of the Committee on Cancer.

The Survey will be continued through several issues because of its length. This is the first installment.

facilities may be found and also where they are lacking. Such information can be obtained only by careful surveys of hospitals, clinic groups and other organizations concerned with the cancer problem.

The Missouri State Medical Association for many years has been engaged in professional and lay education in health and medical matters. In 1931 a Committee on Cancer was appointed as one of the standing committees of the Association. In the development of the committee's work it was felt that before much further progress could be made it would be necessary to obtain fundamental facts about the cancer problem, the analysis of such facts when available to be the basis of a more adequate program of cancer control in the state.

In December, 1930, the St. Louis Medical Society requested the American Society for the Control of Cancer to make a survey of the cancer problem in that city. The survey was made early in 1931 and a report with recommendations was submitted to the Society in June of the same year. This report and a report of a similar survey of St. Louis County were published in The Journal of the Missouri State Medical Association, June, 1932.

At the Annual Meeting of the House of Delegates of the Missouri State Medical Association on May 1, 1933, a report was submitted by the Committee on Cancer recommending a state-wide survey to be made by the American Society for the Control of Cancer. The portions of this report bearing upon this survey are quoted herewith:

The Cancer Committee has continued its investigation of the facilities for handling cancer patients throughout the State of Missouri.

In the larger cities the facilities are adequate for taking care of the cancer patient therein resident in a satisfactory manner as governed by standards enumerated by the American College of Surgeons; however, in the state at large, facilities are woefully inadequate.

By a recheck of the information obtained last year, which according to our last annual report showed sixteen counties with good facilities, we find the number must be reduced to ten and in only two cities, namely, Kansas City and St. Louis, is provision made for the handling of the cancer sufferer who has no available funds. . . .

In 1931, upon suitable resolutions of the St. Louis Medical Society and upon receipt of an invitation from the Health Commissioner of the City of St. Louis, the American Society for the Control of Cancer made a cancer survey of the City of St. Louis. This has proven of great value. The Cancer Committee of the State Association therefore recommends that the following resolution be adopted by the State Association:

Whereas, The rapid increase of cancer in its various forms is assuming alarming proportions, now being second only to heart disease as a cause of death; and

Whereas, The present cancer situation is a challenge to the medical profession to render an increasingly effective service in its diagnosis and treatment; and

Whereas, The greatest hope for reducing the increasing mortality from this disease lies in diagnosis and treatment in early stages; and

Whereas, The medical profession and the hospitals are the only forces capable of coping with the cancer problem at this time; and

Whereas, There is need for further education of the medical profession and the public as to the need for and value of early diagnosis and early adequate treatment; and

Whereas, A constructive program of improved cancer service can be based only on accurate information as to the present professional and institutional facilities for the diagnosis and treatment of this disease; therefore be it

Resolved, That the Missouri State Medical Association approve and sponsor a survey of the cancer situation in Missouri, and that the American Society for the Control of Cancer be requested to make such a survey, reporting its findings with recommendations to this Association.

To sum up this lengthy report, the Cancer Committee of the Missouri State Medical Association makes the following specific recommendation: . . .

III. That the American Society for the Control of Cancer be requested to make a survey of the cancer situation in the State of Missouri, the survey to be made without cost to the Missouri State Medical Association.

Respectfully submitted,
Earl C. Padgett,
Dudley A. Robnett,
Ellis Fischel, Chairman.

The report of the Committee on Cancer quoted above was approved by the House of Delegates.

The approval of the survey by the State Department of Health of Missouri was contained in the following statement from Dr. E. T. McGaugh, State Health Commissioner.

February 28, 1934.

The Health Department of the State of Missouri endorses the cancer survey that is being made by the American Society for the Control of Cancer.

It is our understanding that this survey is being made in cooperation with the State Medical Association of Missouri and we proffer every assistance and grant every facility of this department in carrying out its purpose.

(Signed) E. T. McGaugh, M.D.,
State Health Commissioner.

The approval of this survey by the Missouri State Medical Association and the State Board of Health assured the full cooperation of institutions and individuals most concerned with the cancer problem. The field work of this survey has been conducted with almost universal cooperation of hospital executives, medical staffs and physicians in the cities visited. Officers and employees of the State Medical Association and

members of the Committee on Cancer have given enthusiastic support to the work. The State Health Commissioner placed the facilities of his department at the disposal of the society and the Division of Vital Statistics supplied the material for tables on cancer mortality incorporated in this report.

Without cooperation of the above mentioned organizations and individuals this survey would not have been possible. It is a pleasure here to recognize and acknowledge their interest and assistance.

METHODS OF THE SURVEY

Previous to making this survey a visit was made to Missouri and the work discussed with organizations and individuals most concerned with it. Shortly before the field work was begun the following questionnaire and covering letter were sent to all general hospitals in the state with a listed capacity of 25 beds or more asking for information on bed capacity, equipment, methods of handling cancer patients and statistics of their cancer experience during the year 1932.

November 1, 1933.

Upon request of the Missouri State Medical Association, the American Society for the Control of Cancer is undertaking a survey of the hospital and medical facilities in that state for the diagnosis and treatment of cancer.

This survey will bring together for the first time in Missouri information on existing facilities for the diagnosis and treatment of cancer in its various forms and should prove of benefit alike to the general community and those primarily interested in this disease. From the data assembled a report will be prepared for the Missouri State Medical Association with recommendations.

To make this survey as valuable and comprehensive as possible your cooperation is earnestly requested. The enclosed questionnaires, one copy being for your own files, require a minimum of statistical work, the majority of questions being answered by yes or no.

It will be greatly appreciated if the completed questionnaire could be returned not later than December 1, next.

Anticipating your cooperation in this important work, I am,

Sincerely,
F. L. Rector, M.D.,
Field Representative.

Enclosures:
Two questionnaires.
Self addressed stamped envelope.

The American Society for the Control of Cancer
1250 Sixth Avenue, New York, N. Y.

HOSPITAL SURVEY OF CANCER FACILITIES IN MISSOURI

1. Name of hospital.
2. Address of hospital.
3. Superintendent's name.
4. Total number of beds (excluding bassinets).
5. Number of beds designated for cancer patients.
6. Maximum voltage of X-ray machines in kilovolts.
7. Number of milligrams of radium owned by hospital.
8. Number of milligrams of radium owned by local physicians.
9. Does hospital rent radium? Purchase radon? From where obtained?
10. Is there a laboratory properly equipped for tissue examination? For making frozen sections for quick diagnosis during operation?
11. Is the pathologist in charge a physician?
12. Is the pathologist on full- or part-time service?
13. If part-time, how many hours daily or weekly in attendance?
14. If there is no laboratory, where are tissues sent for examination?
15. Is the hospital affiliated with a medical teaching institution?
16. Is there an organized tumor service?
17. Is there an Out-Patient Department?
18. Number of new cancer patients seen in Out-Patient Department in 1932?
19. Has hospital a social service department?
20. Is status of all cancer patients known five years after discharge?
21. Number of adult patients admitted to hospital in 1932.
22. Number of cancer* patients admitted to hospital in 1932?
23. Number of all hospital deaths in 1932.
24. Number of cancer deaths in 1932.
25. Number of autopsies performed in 1932.
26. Number of cancer autopsies performed in 1932.

* All malignancies.

Signed by———————————

Official position———————————

Date ————

Each hospital contributing to the survey, with few exceptions, was visited and cancer problems discussed with the superintendent and such staff members as were available. Physical equipment of the hospital, particularly surgical, laboratory and roentgen ray equipment was inspected. Some time was spent in discussing cancer problems with physicians known to be particularly interested in the work. As opportunity offered talks were given to nurses and physicians at which time the Canti film was shown. Talks to women's clubs and college students were given in different cities and it is estimated that approximately 3000 persons, both lay and professional, were reached in this manner. Literature of interest to physicians, nurses and the public was distributed at these meetings.

The information and statistical material collected during this survey have been analyzed and form the body of this report.

POPULATION STATISTICS

According to the Federal Census for 1930, Missouri had a population of 3,629,367. Of this number 1,859,119, or 51.2 per cent, are classified as urban and 1,770,248, or 48.8

per cent, as rural. The following table shows the population of Missouri by decades since 1820:

Table 1. *Population of Missouri by Decades. 1820-1930*

Year	Population Total	Urban	Rural	Population Per Square Mile	Percentage Increase
1820	66,586				
1830	140,455				
1840	383,702				
1850	682,044				
1860	1,182,012				73.3
1870	1,721,295				45.6
1880	2,168,380				26.0
1890	2,679,185	856,966	1,822,219		23.6
1900	3,106,665	1,128,104	1,978,561	45.2	16.0
1910	3,293,335	1,398,817	1,894,518	47.9	6.0
1920	3,404,055	1,586,903	1,817,152	49.5	3.4
1930	3,629,367	1,859,119	1,770,248	52.8	6.6

More than 93 per cent of the population is white. According to the 1930 census there were 223,840 Negroes, or 6.1 per cent; and 6640 persons of foreign birth of which 4989 were Mexicans.

Illiteracy in the state is rated as 2.3 per cent of the population 10 years of age and over.

As noted from table 1 the population of Missouri is quite evenly divided between urban and rural. But two cities have more than 100,000 population each and four more a population of 25,000 to 100,000. Ten cities have a population of from 10,000 to 25,000; twenty-one from 5000 to 10,000, and thirty-five from 2500 to 5000 each. Nearly half, 48.8 per cent, of the population lives in communities of less than 2500 inhabitants.

The sex distribution of the population is as follows: Male 50.2 per cent, female 49.8 per cent. There are 100.9 males per 100 females. In the urban population females outnumber the males by 2.6 per cent while in rural areas there are 3.6 per cent more males. Table 2 shows the age and sex distribution of Missouri's population according to the 1930 census.

Comparison of Missouri with several neighboring states on the percentage distribution of urban and rural population by sex is shown in table 3.

Table 3. *Percentage Distribution of Urban and Rural Population by Sex in Certain States. 1930*

State	Total Per Cent Male	Total Per Cent Female	Urban Per Cent Male	Urban Per Cent Female	Rural Per Cent Male	Rural Per Cent Female
Missouri	50.2	49.8	48.7	51.3	51.8	48.2
Iowa	50.7	49.3	48.8	51.2	52.1	47.9
Kansas	51.0	49.0	49.5	50.5	52.5	47.5
Nebraska	50.5	49.5	49.0	51.0	52.5	47.5

A further analysis of the urban and rural population of Missouri by sex and age groups with age 30 as the dividing line shows that the rural areas contain a larger percentage of both sexes in the younger age group than do urban areas. These differences are indicated in table 4.

Table 4. *Percentage Distribution of Urban and Rural Population by Sex and Age Groups. Missouri. 1930*

Age	Urban Male	Urban Female	Urban Total	Rural Male	Rural Female	Rural Total	Total Male	Total Female
Under 30	49.2	50.0	49.7	54.4	55.0	55.0	51.8	52.6
Over 30	50.8	50.0	50.3	45.6	45.0	45.0	48.2	47.4

The age distribution of the population of Missouri shows no marked difference from that of other states in this same geographic area. In keeping with the majority of other states and with the United States as a whole the population of Missouri is consistently becoming an older population. In the last

Table 5. *Percentage Distribution of Population by Age Groups*

Age Group	United States 1910	United States 1920	United States 1930	Missouri 1910	Missouri 1920	Missouri 1930
Under 5	11.6	10.9	9.3	10.9	9.6	8.4
5- 9	10.6	10.8	10.3	10.3	9.9	9.3
10-14	9.9	10.1	9.8	9.8	9.8	9.0
15-19	9.9	8.9	9.4	10.1	9.0	9.0
20-24	9.8	8.8	8.9	9.7	8.6	8.6
25-29	8.9	8.6	8.0	8.7	8.5	7.9
30-34	7.6	7.6	7.4	7.5	7.6	7.4
35-44	12.7	13.4	14.0	12.9	13.7	14.2
45-54	9.1	10.0	10.6	9.4	10.7	11.4
55-64	5.5	6.2	6.8	5.8	7.0	8.0
65-74	3.0	3.3	3.8	3.3	3.8	4.7
75-up	1.1	1.3	1.6	1.3	1.7	2.0
Unknown	.2	.1	.1	.2	.1	.1
Per cent 30 years and above	39.2	41.9	44.3	40.4	45.6	47.8

Table 2. *Age and Sex Distribution of Missouri's Population. 1930*

Age Groups	Total Population	Per Cent Total	Male Population	Male Per Cent Total	Male Per Cent Male	Female Population	Female Per Cent Total	Female Per Cent Female
Total	3,629,367	100.0	1,822,866	50.2	100.0	1,806,501	49.8	100.0
Under 5	305,862	8.4	155,518	50.8	8.5	150,344	49.2	8.3
5- 9	339,137	9.3	172,243	50.7	9.4	166,894	49.3	9.2
10-14	325,058	9.0	164,554	50.6	9.0	160,504	49.4	8.9
15-19	326,555	9.0	163,238	50.0	9.0	163,317	50.0	9.0
20-24	313,650	8.6	151,053	48.1	8.3	162,597	51.9	9.0
25-29	287,176	7.9	138,860	48.3	7.6	148,316	51.7	8.2
30-34	267,002	7.4	130,814	49.0	7.2	136,188	51.0	7.5
35-44	514,044	14.2	257,383	50.0	14.1	256,661	50.0	14.2
45-54	413,431	11.4	211,284	51.1	11.6	202,147	48.9	11.2
55-64	290,138	8.0	150,611	51.2	8.3	139,527	48.8	7.7
65-74	171,189	4.7	89,016	52.0	4.9	82,173	48.0	4.5
75-up	73,336	2.0	36,717	50.0	2.0	36,619	50.0	2.0
Unknown	2,789	0.1	1,575	56.5	0.1	1,214	43.5	0.1

twenty years there has been an increase of 7.4 per cent in the population aged 30 and above. Based on the 1930 census this gives an actual increase of 121,235 individuals in the higher age group in twenty years.

This percentage change in various age groups is again demonstrated when the age distribution for 1930 is compared to the age distribution of the standard million population familiar to statisticians. In table 6 comparison of the 1930 population of Missouri with the standard million distribution is shown. This comparison shows that up to age 35 the real population age grouping is below that of the standard million while the older age groups show a proportionate or a larger increase.

Table 6. *Age Distribution of Population of Missouri Compared to Standard Million Distribution. 1930*

Age Groups	Standard Million Number	Standard Million Per Cent	Real Population Number	Real Population Per Cent
Under 5	413,751	11.4	305,862	8.4
5- 9	388,340	10.7	339,137	9.3
10-14	373,828	10.3	325,058	9.0
15-19	362,931	10.0	326,555	9.0
20-24	348,422	9.6	313,650	8.6
25-34	587,962	16.2	554,178	15.3
35-44	446,410	12.3	514,044	14.2
45-54	323,011	8.9	413,431	11.4
55-64	217,762	6.0	290,138	8.0
65-74	119,770	3.3	171,189	4.7
75-up	47,182	1.3	76,125	2.1
Total	3,629,367	100.0	3,629,367	100.0

(To be continued in the November issue.)

TREATMENT OF ENCEPHALITIS IN THE ST. LOUIS EPIDEMIC OF 1933

John W. Eschenbrenner, St. Louis (Journal A. M. A., Sept. 15, 1934), presents the treatment and care developed during the observation of 348 cases of epidemic encephalitis at the St. Louis City Isolation Hospital. Being at a loss to supply any specific treatment, symptomatic treatment based on clinical experience with similar conditions was resorted to. In many of the patients, adults and children, who had mild symptoms, the course of the disease was short, there were almost no complications in these mild cases, and therefore little therapy was required. As is true in other contagious diseases and in neurologic conditions in which the patients are in stupor or coma and are sometimes incontinent, good specialized nursing care is important. Graduate nurses were therefore delegated to the care of these patients. All the patients were given bed rest, a soft diet and forced fluids. With the knowledge that in the acute stage of the disease there is an acute diffuse inflammatory reaction in the brain tissue and that the symptoms were probably due essentially to cerebral edema and increased intracranial pressure, the treatment instituted was designed to relieve this condition mechanically. This consisted in the use of spinal punctures and hypertonic dextrose solution intravenously. Retention of urine usually did not recur after one or two catheterizations. In the acute stage of the disease, bronchopneumonia was the most frequent complication and was treated according to the individual indications. The majority were given inhalations of a mixture of 30 per cent carbon dioxide in oxygen for ten minutes every two hours. Fifty per cent dextrose solution was given intravenously every six to twelve hours in an attempt to reduce the congestion of the lungs. Delirium tremens, another complication occurring during the acute stage of the disease and usually in the young men, responded readily to large regular doses of paraldehyde. Uremia was next to bronchopneumonia in incidence and seriousness. These patients were treated by forcing fluids by mouth and parenterally to the extent of 5000 cc. in twenty-four hours. Some of the more severe cases were followed by a mild Parkinson's syndrome. For this phenobarbital was given, sometimes continued in fairly large doses.

SYMPTOMS AND DIAGNOSIS OF ENCEPHALITIS

Theodore C. Hempelmann, St. Louis (Journal A. M. A., Sept. 8, 1934), gives the symptomatology of the St. Louis outbreak of encephalitis as characterized by a rather sudden onset, with headache, high fever, stiff neck, mental confusion, tremors and other neurologic symptoms, but only occasional transient ocular manifestations. Following a stormy course, in most instances rapid improvement occurred, leading to apparently complete recovery within two or three weeks and leaving no residual effects. As the proportions of the epidemic grew, it soon became evident that there were apparently two distinct phases to the infection. The first consisted of symptoms of a general or systemic nature, and the second was characterized by evidences of invasion of the central nervous system. Among the systemic manifestations may be mentioned such complaints as extreme lassitude, malaise, chills or chilly sensations, griplike pains in the back or limbs, nausea or vomiting, and abdominal pains. As involvement of the nervous system became apparent there was usually fever, severe headache, stiff neck, mental confusion and tremors, with a host of irregular neurologic signs and symptoms depending on the localization of the pathologic lesions. Moreover, since the disease affected by preference the older adults, the symptoms were often modified, or partially masked by preexisting pathologic conditions such as senility, arteriosclerosis, chronic heart or kidney disease, or hypertension. Complications of this nature proved important factors in the prognosis, since the death rate was noticeably lower in children and in the younger, healthy adults. During the period of invasion, before neurologic signs had developed, the illness was often diagnosed influenza, until the subsequent course and lumbar puncture corrected the error. Cases presenting chills, fever and no leukocytosis suggested the possibility of malaria, which was ultimately ruled out by the absence of the characteristic splenic enlargement, and of plasmodia in the blood smear, and the further development of the symptoms in encephalitis. Typhoid was simulated very closely at times, especially when the patient had a leukopenia and bradycardia. Acute anterior poliomyelitis may exhibit symptoms and spinal fluid changes similar to encephalitis, but in poliomyelitis the sensorium is usually clear, speech is unaffected, and blurred vision, vertigo and pathologic plantar reflexes are rare, whereas they are relatively frequent in encephalitis. The characteristic flaccid paralysis of various muscle groups that occurs in poliomyelitis is also quite different from the spastic extremities occasionally observed in encephalitis. Encephalitis and tuberculous meningitis may at times be indistinguishable in the early stages. In tuberculous meningitis, however, the onset is ordinarily slower, the breathing often irregular, the course progressively downward to a fatal termination, and the tuberculin tests and roentgenograms of the chest may be suggestive.

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OCTOBER, 1934

EDITORIALS

CANCER IN MISSOURI

This issue of The Journal contains the first installment of the cancer survey of the State of Missouri which was made by Dr. F. L. Rector, field representative of the American Society for the Control of Cancer. Although the recommendations which evolved from this report have been previously published, it would be well worth the while of every member of the Association to peruse the report in detail. The report not only covers conditions in the State of Missouri in regard to many phases of cancer but provides a ready reference work to consult in regard to the hospital situation in the various counties of Missouri, number of physicians, statistical studies of population, etc. For instance, the two extremes of ratio of population to physicians are: One physician to 395 population in the City of St. Louis and 1 to 3630 population in Shannon County.

The significance of the survey which, as stated in the introduction, was made after a recommendation of the Cancer Committee of the State Medical Association had been accepted by the House of Delegates at the Kansas City Session in 1933, and with the full endorsement of the State Department of Health of Missouri, is that it brings squarely before the medical profession of the state the inadequate povisions existent for the care of the cancer patient except in a very few centers; and the fact that there is practically no provision within the state for hospitalization of the indigent cancer sufferer. The members of the Cancer Committee of the State Association have received numberless letters from physicians asking where indigent cancer patients who require hospital care might be treated.

Following that part of the program of the Cancer Committee which had to do with emphasizing the importance of cancer both to lay and professional groups during the last year there has been a quickening of the general interest in regard to this disease which is the second greatest cause of death in Missouri. The recommendations of the Cancer Committee which were presented at the last meeting of the State Association at St. Joseph and accepted by the House of Delegates include further generally informative programs before county medical societies and lay audiences.

It is hoped that the general increase in interest in cancer will stimulate the staffs of the well equipped general hospitals of the state to form among themselves groups of physicians representing various specialties in medicine, each individual of the group to manifest an interest in malignant disease, its diagnosis and treatment; and that these groups form "tumor clinics" to which physicians in these districts may feel free to refer their patients for diagnosis and recommended treatment with the understanding that each patient so referred shall be sent back to his physician for treatment or final disposition.

This is but part of the ultimate goal which should include a state hospital for the care of the indigent cancer patient. Such state hospitals have already been established by acts of the legislatures in Massachusetts and New York. They are operating under nonpolitical control not only benefiting hundreds of cancer sufferers but also making valuable contributions to our knowledge of cancer. Such an institution should it be established in Missouri might well be made the responsibility of the organized medical profession of the state.

The Cancer Committee of the State Association has for the last year supervised the operation of an ambulatory tumor clinic at the State Hospital in Fulton and the work carried on there can be pointed to with pride by each and every member of the State Association as a demonstration of what disinterested service by members of this Association can mean to the citizenry of the state.

HOW THE SALES TAX AFFECTS PHYSICIANS

Quite a number of our members have received letters from the State Auditor informing the physicians that they are subject to the sales tax and requesting reports and remittances.

In order that members may thoroughly understand how and when the law affects them we quote that provision which specially refers to physicians, surgeons and dentists, viz.:

> Physicians, surgeons and dentists primarily render services, and the receipts from such services are not within the Act. However, where physicians, surgeons or dentists prescribe and compound their own remedy, which they sell at retail separately and apart from the rendering of services, or where they sell tangible property at retail such as proprietary medicine and dentifrices, separate and apart from their services, as a business, return of such sales should be made.

From this excerpt it is clear that a physician is not liable to the tax unless he sells drugs and medicine separately and apart from his professional service to the patient; if the physician makes an extra charge for the medicine over and above his fee for professional service he is liable to the tax.

If the physician is not selling any drugs or medicines separate from the treatment and not charging any additional price for the drugs or medicines he should so reply to the State Auditor or his representative if questioned.

DIAGNOSIS OF SYPHILIS

The United States Public Health Service is cooperating with the American Society of Clinical Pathologists in drafting a plan to evaluate independently serologic procedure for the diagnosis of syphilis in this country. Since the serologic conferences at Copenhagen and Montevideo there has been an increased interest in the relative value of serologic tests for the diagnosis of syphilis. At these conferences the test of only one serologist of the United States was presented for consideration. There are a number of excellent serologists in this country many of whom have described original modifications of the complement-fixation and precipitation tests for syphilis and it is felt that the tests of these workers merit consideration.

The plan of the United States Public Health Service contemplates the collection of specimens of blood from at least 1000 individuals and the distribution of comparable specimens to the laboratories of serologists who have described original modifications of a complement-fixation or precipitation test for the diagnosis of syphilis. The donors of the specimens will be carefully selected so as to measure both the specificity and the sensitivity of the serologic procedure. The sending of specimens to workers at considerable distance from the point of collection will be expedited by the use of the most modern transportation facilities while the delivery of specimens to nearby serologists will be delayed so as to make the delivery time approximate that for those workers at the more remote points.

A committee of five members consisting of two specialists in the field of clinical syphilology, two members of the American Society of Clinical Pathologists and one officer of the United States Public Health Service will organize the plan of study and, after all laboratory reports have been submitted by participating serologists, will interpret the results on the basis of clinical findings. The collection of the specimens will begin about December 1, 1934, and a number of serologists will be invited to take part in the evaluation scheme.

It is possible that the name of some serologist who has described an original modification of a test for syphilis may have been inadvertently omitted. Any serologist desiring to participate will be extended an invitation upon presentation of suitable proof as to the originality of his modification of a serologic test. A brief description of the plan will also be sent to those workers who may be interested. Correspondence should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

NEWS NOTES

Dr. E. T. Gibson, Kansas City, was the guest of the Lyon County (Kansas) Medical Society at Emporia, Kansas, September 4, and spoke on "Treatment of Head Injuries."

Dr. Fred Emmert, St. Louis, was a guest speaker at the St. Clair County (Illinois) Medical Society on September 6 at St. Mary's Hospital, East St. Louis, and spoke on "Early Diagnosis of Cancer of the Cervix."

The five units of the Homer G. Phillips Negro Hospital, St. Louis, are scheduled to be completed by the fall of 1935. Labor disputes caused a two and a half months' delay in construction during the summer but work was resumed the middle of August. Construction was started in August, 1932. The service building is the only building now completed. The units will contain the service building, an administration building, two wards and a nurses' home.

Dr. Harriet S. Cory, St. Louis, has been appointed executive secretary of the Missouri Social Hygiene Association it was announced September 5. Dr. Cory has been serving in the capacity of acting executive secretary for some time.

Dr. R. B. H. Gradwohl, St. Louis, while on a vacation trip in California this summer was the guest of the Santa Monica Branch of the Los Angeles County (California) Medical Society and delivered an address. He also presented a demonstration of the Schilling test at the Santa Monica Hospital.

Dr. F. M. Grogan, former superintendent of the St. Joseph and of the Nevada state hospitals, has been appointed to the superintendency of the St. Louis Sanitarium. The position was made vacant by the appointment of Dr. George A. Johns, the former superintendent, to the superintendency of the St. Louis Training School. Dr. James Lewald, who was superintendent of the training school, resigned to accept a position in the District Training School, Laurel, Maryland.

The Rev. Father Alphonse M. Schwitalla, S. J., St. Louis, dean of the St. Louis University School of Medicine, left St. Louis September 14 to attend the organization meeting of a planning committee for the inspection and reappraisal of medical schools. Father Schwitalla is one of a committee of seven which is being organized under the auspices of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association.

A survey to determine the after effects of encephalitis was begun in St. Louis and St. Louis County the latter part of September. The work is being done through the St. Louis Metropolitan Health Council and all patients still residing in the city or county will be contacted if possible and examined by physicians. Official records show 1097 cases of encephalitis with 221 deaths in the epidemic in St. Louis City and St. Louis County last year. Physicians who treated patients privately have been asked permission to make observations of their patients. The work is expected to take three months and it is planned now to repeat the survey in a year. Dr. Paul J. Zentay, St. Louis, is secretary of the Metropolitan Health Council.

The Cook County Graduate School of Medicine, Chicago, will give intensive courses of two weeks' duration beginning October 22 in ear, nose and throat, internal medicine and fractures and traumatic surgery. The clinical work will be given in the Cook County Hospital and the didactic work in the school building. Fees will be charged for the courses and the enrollment in each course will be limited. Information on the courses may be obtained by addressing the Registrar, 427 S. Honore Street, Chicago, Illinois.

Dr. James A. Logan, Warsaw, secretary of the Benton County Medical Society, was unanimously selected as the Republican nominee for Congress from the 2nd congressional district and Dr. W. H. Breuer, St. James, Vice Chairman of the Council, was selected as nominee from the 8th district at a meeting of the district committee in Jefferson City August 28. Dr. Logan is now mayor of Warsaw and has twice been a member of the State Legislature from Benton County. Dr. Breuer is a past President of the Association and is Councilor of the 27th District.

Dr. Irl B. Krause, Jefferson City, formerly Assistant State Health Commissioner, was elected president of the Missouri Tuberculosis Association at its annual meeting in St. Louis, September 20.

Dr. Krause was connected with the Missouri State Board of Health throughout a period of about fifteen years serving under several administrations. He is largely responsible for the splendid type of public health work inaugurated by the different régimes under which he served. The medical profession and health officers regret that he has severed his connection with the State Department of Health.

The International Assembly of the Inter-State Post Graduate Medical Association of North America will hold its annual session at Philadelphia November 5 to 9. This will be the first time the assembly has met east of the Alleghenies. Preassembly clinics will be held on November 3 and postassembly clinics on November 10 in the Philadelphia hospitals.

The assembly will convene in the Public Auditorium which is located in the university area and near the Philadelphia General Hospital. The aim of the program committee, with Dr. George W. Crile, Cleveland, as chairman, is to provide for an intensive

postgraduate course covering the various branches of medical science. A Missouri member, Dr. Evarts A. Graham, St. Louis, will present a diagnostic clinic on November 9 on "Primary Carcinoma of the Lung."

The Philadelphia County Medical Society will be host to the assembly and has appointed a list of committees that will function throughout the assembly. Members of the profession in good standing in the state and county societies are invited to attend the assembly.

The license to practice midwifery held by Mrs. Mary Ann Elizabeth Murphy, who practiced under the name of O'Connell at 5932 Easton Avenue, St. Louis, was revoked by the State Board of Health following a hearing for "dishonest and unprofessional conduct," September 12.

This is the first time the board has heard charges against a midwife since 1906 when, according to Dr. Emmett P. North, president of the State Board of Health, Mrs. Murphy's license was revoked on charges of sending obscene matter through the mails. Her license was restored in 1917.

Mrs. Murphy, who is 63 years old, was represented by Arthur F. Blase, attorney, who sought a continuance explaining his client was ill.

The charges were brought by James J. Ferns, director of the department of licensure of the State Board of Health, on information furnished by Health Commissioner Bredeck, St. Louis.

The complaints specifically charged the defendant with conducting a maternity home without a license, with trafficking in babies by advertising to place children for adoption, for performing illegal operations and with failure to file a birth certificate within ten days after birth.

The following products have been accepted by the Council on Pharmacy of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories
- Mixed Ragweed Pollen Extract Decimal Dilution Set

Mallinckrodt Chemical Works
- Hippuran
  - Hippuran (Crystals) 12 Gm. vial
  - Sterile Solution Hippuran 25 cc. size

Wm. S. Merrell Company
- Diothane
  - Diothane Crystals
  - Diothane 10 per cent Solution

Parke, Davis & Co.
- Ampoules Thio-Bismol, 2 Gm.
- Tuberculin for the Mantoux Test

S. M. A. Corporation
- Carotene-SMACO
  - SMACO Carotene in Oil
  - SMACO Carotene with Vitamin D Concentrate in Oil
  - SMACO Vitamin D Concentrate in Oil
  - SMACO Carotene and Vitamin D Concentrate in Codliver Oil

Winthrop Chemical Co., Inc.
- Diodrast
  - Diodrast Sterile Solution (35 per cent, weight/volume), 10 cc. size
  - Diodrast Sterile Solution (35 per cent, weight/volume), 20 cc. size

Carbide and Carbon Chemicals Corporation
- Triethanolamine-Carbide and Carbon Chemicals Corporation

Lakeside Laboratories, Inc.
- Ampoules Dextrose (d-Glucose) 50 Gm., 100 cc.

Eli Lilly & Co.
- Ampoules Glucose (Dextrose, U. S. P.) Lilly, Unbuffered, 25 Gm., 50 cc.
- Ampoules Glucose (Dextrose, U. S. P.) Lilly, Buffered, 25 Gm., 50 cc.
- Ampoules Glucose (Dextrose, U. S. P.) Lilly, Unbuffered, 50 Gm., 100 cc.

Sharp & Dohme, Inc.
- Ivyol—Poison Ivy Extract—Mulford, one syringe package

United States Standard Products Co.
- Diphtheria Toxoid, Alum Precipitated (Refined)
- Erysipelas Streptococcus Antitoxin (Refined and Concentrated)
- Dextrose Solution, 25 Gm., 50 cc.
- Dextrose Solution, 50 Gm., 100 cc.

The following product has been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R.:

Stevenson's Mineral Oil Co.
- Stevenson's Heavy Russian Mineral Oil (Mint Flavored).

OBITUARY

RICHARD CALVIN McCLURE, M.D.

Dr. McClure during his thirty-four years as a physician and surgeon in Kansas City had many intimate contacts with the tragedies of life.

His background for a professional life was acquired in high school at Olathe, Kansas. In sequence he was school teacher, attached to the United States Mail Service, dentist and Doctor of Medicine. He exhibited eminent efficiency in all of his vocations, he could easily have been a

direct descendant of the Dr. McClure immortalized by Ian Claren in "Beside the Bonnie Briar Bush." His torch theme was to relieve human suffering and he never missed an opportunity to serve with or without compensation.

He was graduated from the University Medical College in 1900. He was a member of the Jackson County Medical Society.

Dr. McClure was stricken with an acute infection in 1927 from which he never fully recovered. His physical handicap did not dampen his spirit or take the edge off of his enthusiasm.

Numerous men, women and children in Greater Kansas City will miss the kindly care of Dr. McClure.

M. A. H.—in the Jackson County Medical *Journal.*

HORACE RINALDO MINNICK, M.D.

Dr. Horace R. Minnick, Bellflower, a graduate of Cincinnati College of Medicine and Surgery, 1897, died February 14 of heart disease, aged 80 years.

Dr. Minnick was born in Grant County, Indiana, and spent his early life in that state. After completing his medical education he began practicing at Treaty, Indiana. He was actively engaged in his practice in Indiana and Michigan for many years and in September, 1927, he went to Bellflower, Missouri, from Matthews, Indiana. He continued his practice in Bellflower until his death although frequent heart attacks caused him to limit his practice.

He became a member of the Montgomery County Medical Society in 1929 and in his few years' association had endeared himself to his colleagues.

Of Dr. Minnick the Bellflower *News* said, "Thus has ended a long and useful life here on earth; fifty-five years of self-sacrificing service to humanity. Dr. Minnick will be greatly missed in our community as a physician, as a churchman, as a citizen as well as a friend. He was always cheerful and uncomplaining with a pleasant word for everyone. A man of high principle, of sterling character who 'lived peaceably and honorably with all men.' We join with many in extending sympathy to his wife and family."

He is survived by his widow, Mrs. Ruth Minnick, two sons, two brothers and two sisters.

ROBERT HILL DAVIS, M.D.

Dr. Robert H. Davis, St. Louis, a graduate of the University of Virginia School of Medicine, Charlottesville, 1901, died at Charlottesville, June 19, aged 59 years.

Dr. Davis was born in Charlottesville and received his medical training in the University of Virginia where for four generations his forebears had held professorial posts in law and medicine. After completing his work at Charlottesville he studied abroad specializing in diseases of the skin. He began his practice in St. Louis in 1904 and became noted as a skin specialist. He continued his practice until 1932 when he retired.

Dr. Davis was active in organized medicine and in 1933 he was elected an honor member of the St. Louis Medical Society. He had been president of the St. Louis Dermatological Society, chairman of the Mississippi Valley Dermatological Society, staff physician at Barnard Free Skin and Cancer, Bethesda, St. Anthony's, St. Mary's, Deaconess and De Paul hospitals and a lecturer at Washington and St. Louis universities.

Dr. Davis is survived by a son, Robert Hill Davis, Jr., a student at the University of Virginia, and a daughter, Miss Mathilde Davis, who was graduated from Washington University last year.

JOEL CARLTON BROWN, M.D.

Dr. J. C. Brown, Lewistown, a graduate of the Rush Medical College, Chicago, 1886, died of a heart attack while standing in line with his wife at a theater in Columbia, May 4. He was 76 years old.

Dr. Brown was born at Birmingham, Iowa, and moved with his parents to LaGrange and afterward to Edina, Missouri. He attended the public school in his community and the State University. After completing his medical education he practiced at Nelsonville and Hurdland before locating at Lewistown.

Dr. Brown took an active part in the civic and business life of Lewistown as well as in his medical society. He was president of the Lewis County Medical Society in 1923, 1924 and 1926 and was alternate to the Annual Sessions in 1927, 1929 and 1930. He was elected an honor member of the Society in January, 1934.

Of Dr. Brown the Lewistown *News* says:

> Dr. Brown in his service was devoted to his people, no service too hard for him, no day too long, no night too dark nor stormy for him to serve them. It can be said that he never refused to answer a call. He was the servant of his people, a servant in the noble sense that calls talented men to place their talents under contribution to those in need of them. He was a man of sterling integrity, sound judgment, faithful to every trust and devoid of desire to bring glory to himself. He was tender and sympathetic toward his fellow men and made due allowances for the faults of humankind. He was loved by those who knew him intimately for his goodness, kindness of heart, and ever ready response to the call of duty, the call which took him to the humblest home as quickly as to the most powerful.
>
> He is survived by his widow, Mrs. Anna C. Brown, one son, Dr. Lewis E. J. Brown, Major in the Army Medical Corps, and two granddaughters.

JOHN DAWSON PROWELL, M.D.

Dr. Prowell was born in Illinois and moved with souri Medical College, St. Louis, 1889, died at the Bothwell Hospital, Sedalia, June 20, of complications resulting from two operations. He was 71 years old.

Dr. Prowell was born in Illinois and moved with his family to Cedar County, Missouri, in 1867.

He early decided to become a physician and his early education was a stepping stone to his medical studies.

Dr. Prowell became allied with organized medicine early in his career and, though dropping his membership in the Pettis County Medical Society in 1931, he was ever loyal to the Society and the profession.

He is survived by his widow, Mrs. Grace Prowell, two sons, three daughters, two brothers and three sisters.

The following resolution was adopted by the Pettis County Medical Society:

> Whereas, By death the Pettis County Medical Society has lost a worthy and beloved colleague, Dr. John Dawson Prowell, whose long years of service in the medical profession and whose faithful discharge of duty in the interest of those afflicted has brought him countless friends; whose civic activities, church activities and family life have tended to make the community in which he lived better, therefore be it
>
> *Resolved,* That the Pettis County Medical Society has lost one of its oldest and most faithful members, the family a devoted husband and father and the community has lost a true Christian gentleman who gave intelligent support to every interest of his friends. And be it further
>
> *Resolved,* That a copy of these resolutions be sent to the family, to the press, to the Missouri State Medical Association and a copy placed in our records.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

Barry County Medical Society, May 15, 1934.

BUCHANAN COUNTY MEDICAL SOCIETY

The first regular meeting of the Buchanan County Medical Society after the vacation interim was held at State Hospital No. 2, September 2, with Dr. F. M. Grogan, superintendent, and his staff as hosts.

The first and one of the most enjoyable parts of the program consisted of a chicken dinner with all the "trimmings" served in excellent style and very much appreciated by all present.

Immediately following the dinner the Society was called to order by the president, Dr. W. C. Proud. On motion all business matters were postponed to the next meeting

Dr. W. T. Elam moved that a vote of thanks of the Society be extended to Dr. Grogan and his staff for their generosity in inviting the Society to meet with them and assure them of the appreciation for the very excellent dinner.

The first scientific address was delivered by Dr. H. DeLamater, chief physician for the St. Joseph School Board and Director of Hygiene, on "The Sterilization of the Unfit," a well prepared, well delivered address, full of interesting and instructive points. Discussion was opened by Dr. F. M. Grogan and further discussed by Drs. W. L. Kenney, Charles Greenberg, Reinhold Willman, Jacob Geiger and W. H. Minton, closed by Dr. Delamater.

The second address was delivered by Dr. Jacob Kulowski, Iowa City, on "Some General and Specific Clinical Notes on Unusual Types of Osteomyelitis." Discussion was opened by Dr. Arthur Steindler, Iowa City, professor of orthopedic surgery at the University of Iowa and further discussed by Drs. Jacob Geiger, Reinhold Willman and Charles Greenberg. The paper was a scientific contribution of much merit and showed a great deal of ability and study on the part of the author.

The Society was honored at this meeting by the presence of Dr. Arthur Steindler, Iowa City.

Emmett F. Cook, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The regular quarterly meeting of the Cass County Medical Society was held at Harrisonville, September 13, Dr. T. W. Adair, Archie, president, in the chair.

Dr. L. J. Schofield, Warrensburg, discussed the nonsurgical treatment of cancer and Dr. E. R. Cooper, Warrensburg, discussed its surgical treatment.

Others who discussed these subjects were Drs. J. T. Anderson, Warrensburg; A. H. Baldwin, Pleasant Hill, and A. Graham Wooldridge, Butler.

Dr. G. W. Griffith, Garden City, reported a case of endocrine deficiency which responded favorably to treatment by antuitrin.

Dr. J. D. Guyot, Higginsville, reported cases of furunculosis which responded to vaccine treatment after other remedies had failed.

Dr. W. E. Koppenbrink, Higginsville, reported two cases of diphtheria in patients who were alleged to have been immunized to diphtheria not over one year previously.

Dr. M. P. Overholser, Harrisonville, who has reached his fiftieth year in the practice of medicine, was fittingly honored by members of the Society and by visiting physicians.

Drs. W. F. Chaffin, Raymore, and J. S. Triplett, Harrisonville, each presented a paper on Dr. Overholser's fiftieth anniversary of the practice of medicine in which they recounted some of his outstanding achievements.

Drs. L. J. Schofield, Warrensburg; W. A. Braecklein, Higginsville; A. H. Baldwin, Pleasant Hill, and T. W. Adair, Archie, friends of long standing, spoke at some length of their high regard for the doctor. It was moved, seconded and carried that the papers of Drs. Chaffin and Triplett be preserved in the records of the society.

J. S. Triplett, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Society met at the St. Francis Hospital, Maryville, May 2, with the president, Dr. C. D. Humberd, Barnard, in the chair.

The following members were present: Drs. B. F. Byland, Burlington Junction; C. T. Bell, Hiram Day, L. E. Dean, L. E. Egley, W. R. Jackson, C. V. Martin, R. C. Person and W. M. Wallis, Jr., Maryville. Guests present were Miss Mary Herwick, Kansas City; Dr. F. R. Anthony, Maryville; Drs. Earl Braniger, Jesse Miller and H. L. Stinson, dentists, Maryville, and three sisters of the hospital staff.

The scientific program for the evening was not presented because the speakers who were to come from Kansas City were unable to attend.

Miss Mary Herwick, R.N., Kansas City, supervisor of the infant department of the Kansas City General Hospital, gave a brief discussion on "Infant Care and Routine Work in the Kansas City General Hospital."

The Society adjourned until the first Wednesday in September.

W. R. Jackson, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at Round Springs State Park for a basket picnic on July 26. Doctors, their families and friends met for an outing and picnic on the state reservation about noon. A nice spread was had in the form of chicken, chicken sandwiches, cakes, salads, jells, lemonade and other things too numerous to mention. The drouth, hot weather and depression were of minor importance in comparison with the enjoyment of the occasion.

After the meal a few of nature's curiosities were visited. Dr. T. E. Ferrell, Mountain View, and his daughter remained to explore the great cavern near the park. Other features visited were Camp Zoe which is located on a hillside on the beautiful Sinkin Creek. Other features are the barracks where the attendants sleep, the commissary and kitchen, tennis grounds and corral for the ponies. One striking feature of this camp is the beautiful spring where the crystal water arises from the earth and flows quietly to the creek below. Other places visited were the hotel of Mrs. Fay near the entrance of the cavern, also the Shuck Park with its sixteen or eighteen buildings where tourists spend their vacations during the hot months. It is situated on the beautiful Current River where the Round Spring empties its waters into this river.

It is much regretted that some of our members were unable to attend on account of sickness either of their own families or of some of their patients. It is hoped that this picnic may be repeated in the near future.

Meeting of August 31

The South Central Counties Medical Society met at Ava with the following persons present for dinner at 1:30 p. m. at the Kirk Hotel: Dr. W. Wallis Smith and his wife, Dr. C. Souter Smith, of Springfield; Dr. J. A. Fuson, Mansfield; Dr. A. C. Ames, Dr. R. W. Denney and wife, of Mountain Grove; Dr. E. C. Bohrer, Dr. A. H. Thornburgh and his son, Dr. Max Thornburgh, dentist, of West Plains; Dr. J. L. Gentry and his son, Dr. M. C. Gentry and wife, Dr. R. M. Norman and wife, Dr. J. D. Ferguson and wife, of Ava. Dr. R. A. Ryan and wife, of Mountain Grove, arrived for the program but too late for dinner. Dr. R. M. Norman was called away after dinner and had to miss the program.

After dinner the meeting adjourned to the moving picture theater where Dr. C. Souter Smith, Springfield, gave an account of her experience with cataract operations in India and showed an interesting collection of moving pictures taken by herself of the people and conditions existing there especially in connection with hospital work.

In the absence of the president, Dr. J. C. B. Davis, Willow Springs, Dr. A. H. Thornburgh, West Plains, was elected vice president for the rest of this year and took charge of the remainder of the meeting.

The minutes of the meetings at Houston on April 25, at Thayer on June 28, also a report by Dr. W. T. Eudy, Eminence, of the picnic at Round Springs State Park on July 26, and a financial report of the treasurer from April 25 to the present were read and approved.

At this time the ladies retired to the house of Dr. R. M. Norman, Ava, where they spent the remainder of the afternoon very pleasantly.

Dr. W. Wallis Smith, Springfield, showed several reels of moving pictures portraying the anatomy of the hand and how pus burrows up the arm in infections of the fingers and hand, how and where it should be evacuated and the best methods of treatment.

Dr. J. T. Robertson, Cabool, whose application had been on file ever since the time of the Houston meeting in April, was elected to membership.

A letter was read from the Secretary of the State Medical Association inquiring how the Federal Emergency Relief is being administered in our counties which developed the fact that it is generally found to be a little better than for the physicians to give free care to the indigent outright but still not fully up to what it should be.

A letter was read from the State University telling of the convalescent home at Marshall for crippled children, built and endowed by the gift of one half million dollars from Mrs. G. B. Blosser of Marshall, which greatly increases the free work that may be done by the state for indigent crippled children.

Letters were read from the Thurman Betterment Foundation, Pasadena, California, on the subject of eugenic sterilization, and from the American Birth Control League on the subject of contraception. It was voted to take up these subjects at an early meeting and for the secretary to try to get a speaker on these subjects if possible.

The meeting then adjourned to meet at West Plains on October 25.

A. C. Ames. M.D., Secretary and Treasurer.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Advisor, Dr. J. F. Harrison, Mexico.

The Clay County Medical Society and its Auxiliary joined in a picnic at Lake Maurer, Excelsior Springs, August 30. More than fifty participants, doctors and families and a few guests were present. It was the tenth anniversary of the Auxiliary so Dr. E. J. Goodwin, St. Louis, the founder, was invited. He could not be present but sent a cordial letter.

Mrs. Catherine Wysong, Liberty, the only woman coroner in Missouri, has been made Chairman of Health of the Business and Professional Women's Club of Liberty.

The first meeting this fall of the St. Louis County Auxiliary was held September 12 in the Nurses' Home of the County Hospital. Fifteen members were present and a new member was enrolled. Mrs. Willard Bartlett, St. Louis, was the guest speaker and gave a most interesting talk on her travels in Mexico.

Congratulations to the Greene County Auxiliary! Their president, Mrs. W. S. Sewell, Springfield, writes that they have adopted in their "Year Book" the suggestions of the national program and public relations chairmen, Mrs. A. B. McGlothlan, St. Joseph, and Mrs. David S. Long, Harrisonville, almost 100 per cent.

As has been the custom the Cass County Auxiliary, cooperating with the Health Department of the County Home Economics Extension work, paid the way of the 4-H Club county health champion (this year Miss Wilma Babylon) to the state Round-up at Columbia in August. Wilma ranked second in the state contest and was therefore one of the five receiving a blue ribbon award.

The Jasper County Auxiliary is planning entertainment for the 275 visiting nurses when the State Convention of Nurses is held in Joplin, October 25 to 27.

A fine program and a luncheon at the home of the president, Mrs. G. D. Walker, Eldon, opened the year's work of the Miller County Auxiliary on September 22.

With sorrow we record the recent death of Dr. Ralph Holbrook, Kansas City, and of Dr. Frank Hinchey, St. Louis. Mrs. Holbrook and Mrs. Hinchey have the sympathy of the Auxiliary women of the state.

In the death of Mrs. E. L. Johnston, Concordia, August 5, the Lafayette County Auxiliary and the State Auxiliary are bereft of a valuable member. Mrs. Johnston had served as president of her county organization and as a member of the state board. At the funeral August 8 in the Concordia Lutheran church of which Mrs. Johnston was a life-long member, Auxiliary women including those of her own county, the state president, Mrs. W. H. Goodson, Liberty, and other members of the state board, served as honorary pallbearers.

The Woman's Auxiliary to the Southern Medical Association will meet in San Antonio, Texas, November 13 to 16. Headquarters for the women will be in the St. Anthony Hotel where all meetings will be held.

Mrs. M. P. Overholser, Chairman,
Press and Publicity Committee.

MISCELLANY

VOCATIONS AND AVOCATIONS OF THE DOCTOR

BRANSFORD LEWIS, M.D.

ST. LOUIS

The capable and successful doctor is one of the hardest working members of society. He not only works hard in his regular hours on duty but his hours of duty extend into the night either in studying or writing or "on call" of the emergency patient or the expectant mother. No NRA five working days for him! A friend of mine, Dr. Gib Carson, a general practitioner of St. Louis, once told me of an episode that occurred in his busy days of practice: After a hard day of driving work he was looking forward to a good night's rest. For fear that his sleep might be interrupted he waited up until 11 o'clock and then put out the lights and was soon wrapped in sweet slumber. The ominous ringing of the door bell at first was ignored but became so persistent and insistent that he arose grudgingly and opened the door. There stood an old Negro and his wife with ingratiating and apologetic grins covering their faces. They hastened to explain that while the old man had been suffering all day with misery in the stomach they had considerately delayed their call on him for relief until he "wasn't busy." Needless to say this mark of forbearance was not appreciated by the doctor.

There's a trite saying that woman's work is never done. If they mean by that that woman's work is never *well* done, I'll be disposed to leave the answering of that charge to the women themselves. But if it is meant that the work is never *finished,* then I'll say that the women have nothing on busy doctors in that respect.

And yet I'm not appealing for sympathy for the busy doctor. I'm a believer in hard work for every upbuilder of the community or the state. It isn't hard work that hurts anyone. It's the unceasing hard work, the lack of diversion and the treadmill grind of some doctors' lives that breaks them down, that makes old men of them before their time, that dulls their interest in professional duties and makes them a drag instead of an enlivening vocation. I say that if diversification of crops be advisable as increasing productivity and promoting the salability of the commodities produced, diversification is equally valuable for the doctor's mental and physical activities. Many doctors in their devotion to duty or under what they believe to be the stress of necessity indulge in no amusements, provide for no recreations and even sidestep attendance on their medical society meetings in the belief that they "can't get away." A patient might need them! And patients themselves are inclined to exact this attitude in the doctor, waiting until he is about to start on his trip and then suddenly and vehemently demanding his services and threatening to die unless he stay on the job. And the conscientious doctor faithfully wears himself out in the harness, almost literally dying with his service boots on serving his clientage. Of the St. Louis profession I could easily count a hundred or more of my medical friends who thus gave up their lives while yet in their fifties. They had been strong and sturdy and apparently good for three score and ten conventional expectancy; but at middle age—not late life—they wore out, stopped by the wayside and joined with the silent majority.

Of these lamented confreres I mention a few only who died within the last ten years: Jack Tierney, Ed. Higbee, Hanau Loeb, Frank Henderson, George Tuttle, Horace Happel, Senter Gettys, Louis Oatman, Walter Mills, Sebastian Klein, Claude Sellers, Arthur Kimball, George Heuman, Jos. Ebel (34), L. Macklin, Wm. J. Say, Sam Peake, Oscar Elbrecht, Edmund Babler, Harry Hall, Francis Howard (36), Greenfield Sluder, Meyer Lippe, John Falk, Wm. J. Langan, Arthur Marquardt, Fred Pfingsten, R. Wobus, Newell Donnell, Mark Ray Hughes, Randall Tilles, Albert Habermaas, Harvey McKay, Wenzel Gayler, Robt. Burns, Louis Wolfort, Charles Rehfeldt, Howard Bell, George A. Krebs, John F. Shoemaker, Walter Pollmann, Ed. Murphy.

Bearing on this question an editorial in a late issue of the *Journal of the American Medical Association* (April 21, 1934) is illuminating. Analyzing the deaths of physicians of the United States last year (1933) it related that of the 3209 who died 1062 were under sixty years of age. In other words, over one third died before they were sixty years old.

But aside from mortality statistics I have been impressed with the considerable number of comparatively young doctors, 30 to 50 years old, to be met with in Florida, suffering from nervous prostration or general breakdown, physical or mental, from overwork. Apparently robust and vigorous, they have lost their normal pep and morale, drift from place to place in search of restoration that probably would never have

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Read at the meeting of the St. Louis Medical Society, June 5, 1934.

been required had they adopted preventive measures for themselves as they advised for their patients.

Think what a little recreation here, a diversion there, would do for such hard driven slaves of their calling. A pleasant little drive away to a medical meeting where congenial friends await them, a change of thought, a shunting of cares and responsibilities would work wonders in lifting them out of the treadmill existence that is theirs by necessity.

The thought has often occurred to me that doctors are prone to take themselves too seriously in this respect. They seem to have an idea that they individually are the only ones that can rightly and satisfactorily serve their patients; or is it that they fear to give opportunity to a brother practitioner or an assistant lest he serve too well and the contrast prove disadvantageous?

Excuses are made for getting out of diversions instead of arranging for them; and the treadmill is adhered to in the same old way.

But perhaps for really modern times I've painted the picture in colors too melancholy. It must be conceded that within the last ten or fifteen years habits have changed for the better and many of the profession have taken their lot more lightly.

The busiest men of the wise East, New York, Boston and Philadelphia, showed us the way by taking Wednesday afternoons off for golf or for driving in the country with the family, alarming as such a radical departure seemed at first to be. And now local golf tournaments are seldom found without a sprinkling of names of doctors who have made a good showing in the game. Doctors' golf clubs, whose membership is composed exclusively of physicians and surgeons, have blossomed out and flourished in many of the cities of our country. As you know, the Doctors' Golf Club of St. Louis has flourished for the last several years holding tournaments twice a year when the members who still have enough spirit, unquenched by depression and bank failures, can get together, show their prowess at golf even into the 19th hole, and then eat, drink and grow merry.

St. John's Hospital Golf Club of St. Louis, now in its third year of existence, has been supported with such ardor that even the non-golfers of our medical staff are members and do not fail of attendance at least on our dinners. Already we have over a dozen handsome silver trophies of various kinds to play for at our three yearly tournaments. And by way of incentive to donors as well as to club members in competition the impressive array of trophies is kept in a glass cabinet at the hospital, the names of winners being engraved on the trophies after each tournament. They are to remain there perennially, interest being added by the increment of years and potentially famous names. Consider how much more interesting those trophies will be fifty or a hundred years from now when filled with names of successful but departed members! They will act as a fitting memorial and reminder of the festive frolics we members of the St. John's Staff have had together. Our Chief of Staff, Dr. Neilson, says the club has done much to promote fraternalism and esprit du corps of the staff.

Of course we all know of the American Medical Association Golf Club and the tournaments it holds in connection with the Annual Meetings of the Association. Many members, I am told, esteem this as really the most important function of the meetings. Every state association and almost every district society utilizes a golf tournament as a drawing card for their meetings. These facts show that the lesson of avocation and recreation has taken hold of the professional as well as the general public of this country—long after

the same lesson had been well learned in the old countries.

Doctors are now traveling more than they ever did before. If they didn't do that how could there be any attendance on all of the enormous number of medical societies meeting at all times over the country? Somebody has to go to make up the quota of presidents and secretaries and treasurers, if nothing else!

I have heard it said that the Mayo Brothers have been in the habit of traveling 25,000 miles yearly. In their younger and less busy days, do you suppose they said they "couldn't get away" when the time came for their medical or surgical society meetings? It would seem that the busiest men in medicine are the ones who are most constant and devoted in their attendance on medical gatherings. How may one attain fame and fortune in medicine other than by success in his work? And how can he be successful, as judged by progressive standards, without mixing with his up-to-date brethren, learning what they have to give as well as contributing his mite to the cause? Success in medicine or surgery is not to be found behind the hermit's door.

The philosophy of this whole question seems embodied in the old saying: "All work and no play makes Jack a dull boy." The doctor more than anyone else owes it to himself to indulge in hobbies or recreations that are agreeable and uplifting, mentally and physically. There are many such these days and I am not referring to horse racing or poker playing or any such alluring pursuits. Some take their outdoor exercise by proxy, watching the ball games or exciting contests on the tennis courts or football grounds. But probably a more direct and lasting return would be derived from actual participation in an outdoor sport even if it be as mild as tending the garden. Many doctors are

so devoted to their work that they never have time for play; and then when they do arrive at the period of life or prosperity that would permit it they don't know how to play. They wander about like lost souls, onlookers but not participants in the games that seem so enticing to others. We see sad examples of that every year in Florida.

Confidentially, I look on golf as the savior of this nation as well as the potential savior of the medical profession. I believe it prolongs life and makes the longer life worth living. And I am an advocate of condign punishment for the man who tries to work off that old joke about not being old enough yet to play golf. Its good for the old and better for the young, at least the young make better golfers when they grow old enough.

We hear occasionally about "golf widows"—those wives whose husbands play golf, talk golf, think golf on workdays and holidays and seldom partake of their evening meal until it's cold and unprepossessing. But I believe that addiction to this degree of servitude does not include doctors, except possibly the newly converted. Doctors seem to be more temperate in their devotion to the game, even more temperate than ministers. I heard of a Scotch minister who was betrayed into trying his hand at golf by an enthusiastic friend. He teed his ball up, took a great swat at it, topped it—and the ball rolled out about fifteen yards. He swelled up almost to the bursting point but calmed down and said, "I'll have to gie it up, I'll have to gie it up." "What," said the friend, "you don't expect to give up the game after one bad stroke, do you?" "Oh no," said the dominie; "it's the ministrie I'll gie up."

As to indoor games to divert the tired doctor, there are checkers, card games, dominoes, etc. I was interested in reading in a recent issue of the *Post-Dispatch* an account of a local institution, the Workbench, where it is said tired doctors are wont to congregate in the evenings and push to the limit their tastes and genius in divergent directions. Their soul yearnings are satisfied by hammering silver into shapes and pictures that their wives pretend to admire. Others, until the depression passes, are with equal enthusiasm hammering brass. Even the lowly pewter is hammered, drawn and quartered by beginners. The sounds of saws, drills, blow-torches, looms and other implements of art and industry all going at once remind one of a symphony concert when a composition of DeBussy is being rendered. But none of these are to be compared in interest to that fascinating, absorbing, overwhelmingly seductive one of 5000 years' antiquity called chess. Abandon hope, he who enters here. The devotee of chess must be forgiven only for sins of omission, for once absorbed in this pursuit he does nothing else. He stops not for dinner, he forgets to sleep and even the alluring aroma of ham and eggs for breakfast fails to detach him from his game. He is simply a chess-maniac and should be treated—and ignored—as such. This is the honest and candid confession of an irreclaimable addict. So that with these facts acknowledged, I cannot conscientiously advise a virtuous and unsullied doctor to take on chess as a diversion unless he permit himself to be bound by shackles, manacles, oaths and agreements that he will devote only a certain number of hours per week to it, say forty hours, in conformity with the requirements of the NRA. Otherwise let him shun the game as he would, or does, the drink habit, or smoking or other vices to which men alone are addicted.

Concluding, I would remind you that there are diversions and avocations more artistic, possibly more elevating, than those mentioned to which many doctors have been lured of late years: Fiction writing, painting and even photography, in movie or still pictures, might be mentioned.

609 Humboldt Building.

BOOK REVIEWS

A Diabetic Manual. By Elliott P. Joslin, M.D., Clinical Professor of Medicine, Harvard Medical School; Medical Director George F. Baker Clinic for Chronic Disease at the New England Deaconess Hospital, etc. Fifth edition, thoroughly revised. Illustrated. Philadelphia: Lea & Febiger. 1934. Price $2.00.

In 220 pages, which include many charts, illustrations and recipes, the author has made the physiology and treatment of diabetes comprehensible to the patient and physician alike.

Recent advances in treatment include management of diabetic coma, acidosis, diabetic hygiene, and management of diabetes coexisting with other organic disease.

In application of treatment the author recognizes the physical, mental, and economic problems of all classes of patients.

In a chapter written for diabetic children diet, exercise and insulin are described as the three mischievous ponies which must be successfully harnessed and driven together.

Foods and their compositions are listed near the end of the book, and the last chapter is directed to useful laboratory tests of urine and blood.

No diabetic patient or physician can afford to be without this book. B. Y. Mc.

The Clinical Management of Horseshoe Kidney. A Study of Horeshoe Kidney Disease, Its Etiology, Pathology, Symptomatology, Diagnosis and Treatment. By Robert Gutierrez, A.B., M.D., F.A.C.S., Chief of Clinic of the Department of Urology, James Buchanan Brady Foundation of the New York Hospital. With a foreword by Dr. Edmond Papin, Paris. Fifty-two illustrations. New York: Paul B. Hoeber, Inc. Price $3.00.

This treatise is a careful and comprehensive study of the subject of horseshoe kidney that will be of particular interest to the urologist as it co-relates the best diagnostic methods available today and emphasizes the only satisfactory treatment which is symphysiotomy. To the general practitioner it is of interest because it outlines briefly symptoms by which he may recognize this rare but disabling disease.

Dr. Gutierrez's anatomical study is particularly complete in that it describes various positions the horseshoe kidney assumes, the aberrant vessels, the nerve supply, and the important relationship of the peritoneum. He enlightens us with the fact, never stressed before, that histologic study shows all these kidney specimens to have evidence of chronic interstitial nephritis, glomerular and tubular nephritis. He adds a diagnostic sign which has never been used before called, "the horseshoe kidney pyelographic triangle." He feels this to be pathognomonic. The treatment of acute cases should be medical and urological, but later, when the patient has recuperated, surgery is indicated. In conclusion he says, "It appears, therefore, that in the solution of this problem the only possible avenue to permanent relief or cure must lie in surgical approach by division of the isthmus of the fused organ and the liberation of the ureters to provide free draining and restoration of normal function." C. K. S.

Intracranial Tumours. By Harvey Cushing, Professor of Surgery, Harvard Medical School, Surgeon-in-Chief, Peter Bent Brigham Hospital, Boston. Springfield, Illinois, Baltimore, Maryland: Charles C. Thomas Co. 1932. Price $5.00.

The author reviews a series of 2000 verified cases of brain tumor with surgical mortality percentages. I know of no more comprehensive and instructive monograph than this volume, and it is forcibly brought home that the goal of an annual 10 per cent case mortality has actually been reached. This book should be thoroughly read by every member of the profession as it would help correct the faulty notions that the medical profession harbors at present.

The table of classification of verified tumors illustrated in case mortality as well as operative mortality is very striking and enlightening, and it is a sad thing to realize that the proportion of patients admitted in terminal stages after ill-judged procedures at the hands of surgeons with little or no neurosurgical training, is as large as it ever was. Until the general surgeon recognizes and realizes that special training is essential for the handling of these patients both as to operation and after care, the unsuspecting public will continue to be submitted to unskilled surgical therapy.

The astounding advance made by this specialty is beautifully illustrated in this monograph, not only as to case mortality but as regards tumors that five years ago were considered hopelessly inaccessible.

The pathological classification of tumors is very brief but for so small a volume it is remarkably well dealt with. Comment as to the author's ability is unnecessary as he is a peer in this work. It is unfortunate that a text of this type cannot be easily distributed in such a fashion that every man in the profession would have one at his finger tips. R. M. K.

Neurology. By Roy R. Grinker, Associate Professor of Neurology, the University of Chicago. Springfield: Chas. C. Thomas. 1934. Price $8.50.

This work is a splendid accomplishment and easily takes its place besides the leading works in this field such as those of Jelliffe and White and Brain. Those interested in the field of neurology cannot afford to be without it.

It is always possible to find grounds for a difference of opinion in the case of such a text; indeed in attempting to make a review one is again reminded of how complicated a field organic neurology really is. The writer is commendably interested in the scientific aspects of his subject and these assuredly have not suffered in the exposition. But the sections on treatment perhaps necessarily are somewhat curtailed in a number of instances. For example, tryparsamide assuredly does not receive just consideration in connection with paresis and tabes; for, properly exhibited it certainly accomplishes wonders in both these conditions. Trethylene is of enough value to merit mention in trigeminal neuralgia as also is glucose in subacute cases of epidemic encephalitis. The treatment of brain abscess could profitably be much more complete than is outlined and the same is true of a number of other conditions.

On the scientific side there are also naturally openings for a difference of opinion. It seems inexcusable not to give more attention to Marie's conception of aphasia with the important physiological implications which it carries and in truth all textbooks should attempt to reconcile the various contributions to aphasia which occupy a leading position. Surely the emotional syndrome of the thalamus is no less significant than the sensory one, with its potentialities in accounting for the postencephalitic child with a behavior disorder, the euphoria of paresis and for that matter the so-called character disturbance supposed to come from frontal lobe lesions. Again why should not the epileptic seizure be mentioned among the possible extrapyramidal disturbances since it seems to be more closely related to that order of phenomena than to any other? Incidentally some of Dandy's statements regarding his excisions seem to have been misunderstood. It is about time that neurophysiologists are getting their eyes off the expanse of cortex and seeing some of the great possibilities that reside in the base.

It is always a question whether a given disorder should be classified according to its etiology, its symptomatology or some other feature, but a great many more disorders might have been described under the heading "degenerative disorders" than has been done; at least for the sake of completeness they should be mentioned. Then there is undoubtedly a type of subarachnoid hemorrhage of obscure origin perhaps of an inflammatory nature as the epidemic reported from Cincinnati a few years ago would seem to indicate.

It is probably no longer possible to get out a book along the old lines covering nearly all phases of neurology as it interests the specialist, and within the near future what is now one book will doubtless be made into two or three. However we wish to report that this writer has come as near producing the ideal textbook as any other; perhaps he has even come a step nearer. L. B. A.

A Text-Book of Physiology for Medical Students and Physicians. By William H. Howell, Ph.D., M.D., Sc.D., LL.D., Emeritus Professor of Physiology in The Johns Hopkins University, Baltimore. Twelfth edition thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1933. Price $7.00.

The fact that this book has successfully passed through eleven revisions speaks for its real value. Many chapters have been completely rewritten by investigators who are interested in particular fields of research. The chapters on the chemistry of muscle as well as those on accessory food factors or vitamins, and the chapter on the secretion of the ductless glands and enzymes have been completely rewritten. The reviewer indorses this book not only for students but also for practitioners who wish to keep abreast with the newer physiology. A. C. C.

Mental Hygiene in the Community. By Clara Bassett, consultant in Psychiatric Social Work, Division on Community Clinics, The National Committee for Mental Hygiene, Inc. New York: The Macmillan Company. 1934. Price $3.50.

This book in its various chapters discusses mental hygiene in connection with medicine, nursing, social service, delinquency, parent education, the preschool child, teacher training, theological training, industry, recreation and psychiatric institutions and agencies. Presumably these headings indicate the public for which it was written. The exposition is fairly complete and altogether authoritative without containing too much of the mental hygiene lingo. The layman will probably find some difficulty in grasping the matter and in getting the general idea since the presentation is in general terms and quite detailed, lacking easily grasped concrete examples and to some extent a lucid division into topics and subheadings. Never-

theless, there is probably not a book on the market so satisfactory as a general presentation of the subject and while this remains true this book should be required reading for the classes indicated.

But why the use of the term "mental hygiene"? Since a long-time director has admitted that the term has no meaning and a neurological consultant has deplored that it was ever invented, it seems about time to confine "mental hygiene" to the Association whose now perfectly acceptable aims are said to be the promotion of the teaching of psychiatry and of research work. "Applied psychiatry" would seem to be a preferable term. L. B. A.

Obstetrics and Gynecology (Volume III and Index). By 80 leading specialists. Edited by Arthur Hale Curtis, M.D., Professor and Head of the Depart of Obstetrics and Gynecology, Northwestern University Medical School, Chicago, Ill., etc. Complete in 3 volumes and separate desk index. 3500 pages with 1664 illustrations, many in colors. Philadelphia and London: W. B. Saunders Company. 1933. Price $35.00.

The first section of the third volume of this atlas consists of the displacements and relaxations of the pelvic organs. The etiology, diagnosis and treatment of these conditions are completely covered in a most satisfactory manner.

The section on disturbances of function is written mainly by Novak, whose researches on the endometrium occupy a prominent place in obstetrical literature of today. The chapter on sterility is contributed by Rubin.

The relation of the endocrines to obstetrics and gynecology is discussed by Allen, Corner, Smith and Engle. These authors have stressed the clinical application of their researches and though much of this work is in a state of "flux," their conclusions are quite conservative.

Rawls in a concise well written chapter discussed genital fistula. The drawings depicting operative technic are self-explanatory. Diseases of the cervix and the varieties of treatment are carefully considered by Holden.

Two of the most interesting and instructive chapters in this volume are those pertaining to the relation of the appendix and large intestine and the urinary tract to gynecology. Much interesting information is found therein relative to the aspect of diagnosis and treatment.

The section on X-ray and radium therapy in obstetrics and gynecology is a complete monograph in itself. In the last two hundred pages of this volume anesthesia, preoperative and postoperative problems, and the relation of gynecology to medicine, are considered.

On the whole, this three volume work is the most comprehensive publication which has appeared to date in the field of American obstetrics and gynecology. The authors and publishers can well be proud of their endeavors. D. T. V.

Mayo Foundation Lectures on the History of Medicine. A Series of Lectures at the Mayo Foundation and the Universities of Minnesota, Wisconsin, Iowa, Northwestern, and the Des Moines Academy of Medicine. 1926-1932. Illustrated. Philadelphia and London: W. B. Saunders Co. Price $5.00.

There are eighteen lectures upon general and special subjects of which only one has been previously published. Col. Fielding H. Garrison, who wrote the best work on history of medicine in the English language, contributed four of these discourses. They contain a wealth of interesting information in a compressed form, as would be expected from this eminent historian. Three of the articles are by St. Louisans.

Most of the material for "Resurrection Days" by the late Dr. James Moores Ball, reminds us of the same author's book, "Sack-'em-up Men." Some of the vicissitudes, formerly connected with obtaining cadavers for anatomical dissection, are presented with certain unfortunate side-issues. The necessity for the existing "Anatomy Acts" is clearly set forth.

The twenty-two pages of "The Rise of Medicine" by Dr. Major G. Seelig, are replete with this author's characteristic statements. Many of the important figures and events in medical history are treated briefly but with well chosen words and phrases. Dr. Seelig has again drawn upon his extensive vocabulary, so that his narrative lacks the usual repetitions of other historical writers. Thus an otherwise dry subject is made attractive, even to a lay reader.

The last essay in the book is Dr. Willard Bartlett's tribute to a beloved teacher of his German "Studien-Reise," as a young physician. From personal recollections and other sources he has composed "A Sketch of Virchow's Life and Times," and has succeeded in giving us a beautiful word-picture of this renowned pathologist, teacher, politician, hygienist, anthropologist and all-around scientist. Rudolf Virchow may not have exhibited the reputed haste of a typical American, but he was beyond a doubt as busy as any of us.

It is definitely gratifying to note that the various references to Paracelsus by several authors reveals a different attitude than was customary with English writers of former generations. This colossal but tragic figure in history might yet be understood.

The proof reader did not "catch" all the mistakes and misprints; but, that is counterbalanced by a splendid index such as is rarely found in a collection of addresses.

By reading this little volume, a well-trained historian will learn a little that is new to him; and be reminded of some half-forgotten points in the onward march of medicine. An ordinary doctor will derive therefrom some information and inspiration, in proportion to his own degree of receptiveness. R. E. S.

International Clinics. By leading members of the medical profession throughout the world. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volumes II and III, forty-third series, 1933. Philadelphia, Montreal, London: J. B. Lippincott Company.

The June number of the 1933 series contains three fine articles on the pathological physiology of the circulation: Dyspnoea, cyanosis, and edema, listing many causes for each. Next appears a symposium on arterial hypertension which is excellent. There is a paper on heart disease in pregnancy which is very commendable.

In the September number there is an ample discussion of such diseases as infectious mononucleosis, agranulocytic angina, pellagra, and rheumatic fever. There are important papers on spondylolisthesis and the management of acute head injuries.

In each volume there is a paper by Dr. Russell M. Wilder on hyperinsulinism and the diagnosis of parathyroid overfunction, respectively. Special mention must be made of the section on clinical pathological conferences which includes two cases of subacute bacterial endocarditis and two instances of jaundice.

The contents and style of these volumes make them important for every medical practitioner to own and read them. E. E. W.

Metabolic Diseases and Their Treatment. By Dr. Erich Grafe, Professor of Medicine and Director of the Clinic of Medicine and Neurology at the University of Wurzburg, Germany. Translated by Margaret Galt Boise under the supervision of Eugene F. Du Bois, M.D., Professor of Medicine, Cornell University Medical College, New York, and Henry B. Richardson, M.D., Associate Professor of Medicine, Cornell University Medical College, New York. Illustrated with 37 engravings. Philadelphia: Lea & Febiger. 1933. Price $6.50.

An excellent account of present-day metabolic concepts developed from an extensive review of the literature and the author's considerable experience with diseases in this relatively new field of medicine. Occasionally the style tends to verbosity. Possibly the one failure of the book is to present sufficiently exact directions for the practitioner to carry over for the use of his own patients although it was apparently an intentional failure.

Nearly half the book is devoted to diabetes mellitus. The treatment is quite complicated; so much so that, as the author states, it can hardly be carried out by the general practitioner. While much space is devoted to insulin its clinical use is rather sketchily described. It is surprising to find synthalin still recommended for mild diabetes. The suggestion that pharmacist or physician, instead of the patient, make daily tests of the urine is out of keeping with the usual American practice.

The physician interested in metabolic disturbances will find this volume helpful in gaining an understanding of fundamental principles. B. Y. G.

Rose & Carless' Manual of Surgery. Fourteenth edition. Revised by Cecil P. G. Wakeley, D. Sc. Lond., F.R.C.S. Eng., F.R.S. Edin., etc. and John B. Hunter, M.C., M. Chir. Cantab., F.R.C.S. Eng., etc. Edited by W. T. Coughlin, B.S., M.D., F.A.C.S., etc. Baltimore: William Wood and Company. 1933. Price $9.00.

This the fourteenth edition of Rose and Carless' Manual of Surgery has been edited by Dr. Wm. T. Coughlin, Professor of Surgery St. Louis University School of Medicine.

In general, the arrangement conforms to the usual practice in one volume works on surgery. The early chapters, which have been largely rewritten, deal with fundamentals, such as infection, inflammation, etc., in a manner characteristically concise yet comprehensive. Wounds, hemorrhage and technical agencies are next considered, after which the surgical aspects of the various systems of the body are discussed.

From the viewpoint of the American student there is a relative overemphasis of the orthopedic aspects of surgery and the narrow surgical specialties, as contrasted with an inadequate discussion of such subjects as surgical shock, electrosurgery, surgery of the thyroid, etc It would seem advisable in an American edition to present such subjects as general technic more in keeping with practices usual to this country.

Much has been rewritten, some material has been omitted, and still more has been added. This volume is improved physically by the use of surfaced paper and the addition of over 300 new illustrations and a number of colored plates.

On the whole, this edition which its author admits does not pretend to treat exhaustively of "even one subject," will merit its place in a succession of editions of well-deserved popularity among students and practitioners. A. R. K.

A Manual of Diseases of the Nose, Throat and Ear. By E. B. Gleason, M.D., LL.D., Professor of Otology, University of Pennsylvania, Philadelphia. Seventh edition, revised and entirely reset. 651 pages with 261 illustrations. Philadelphia and London: W. B. Saunders Company, 1933. Price $4.50.

This revised edition contains all and even more of the material necessary for the student and the practitioner who may become interested in ear, nose and throat work. The reviewer has always felt that a manual to meet this need should be profusely illustrated with anatomical cuts, instruments and operative procedures, and should have a text voluminous enough to give the reader a general idea of this special field; also, it should contain in sufficient detail a description of the anatomy, pathology, diagnosis and treatment of those diseases of the ear, nose and throat which the author feels should be stressed for the benefit of the medical student and general practitioner. This manual not only meets this requirement by discussing the subject in an orderly manner, but in addition has an interesting appendix of formulas for drugs employed in treating diseases encountered in this specialty. The manual itself is convenient in size and with its text should make an ever ready and handy book for reference. I. D. K., Jr.

Report to the United States Government on Tuberculosis With Some Therapetuic and Prophylactic Suggestions. By S. Adolphus Knopf, M.D. Revised and enlarged report submitted to the State Department War Department and War Veterans Bureau as Government Delegate to the International Union against tuberculosis held at The Hague, Sept. 6-9, 1932, by S. Adolphus Knopf, M.D. (N. Y. University & Paris). Procurable at the office of The National Tuberculosis Association, 450 Seventh Avenue, New York City.

This is a thin, cloth-bound volume of 59 pages, 6 x 9 inches, with 54 illustrations, the frontispiece being a portrait of Her Majesty the Queen Mother of the Netherlands.

The title is extremely misleading, and is apt to cause one to overlook what otherwise would be read with considerable profit and pleasure. If your reviewer might state it, the title should be: "Method of Securing Diaphragmatic Respiration; and Breathing Exercises in the Prevention and Treatment of Tuberculosis," by S. Adolphus Knopf, with a short account of the International Convention on Tuberculosis at The Hague, September 6-9, 1932.

The breathing exercises are, in the opinion of your reviewer, worth while, and should be at the command of every teacher and nurse in the open air schools and sanatoria.

Dr. Knopf's reports of the International Union convention would indicate that sanocrysin and other preparations of gold had not proved worth while or at least were in doubt; that BCG inoculation of infants was going to be worth doing; that surgical treatment of tuberculosis is applicable only to a certain percentage of the cases and that it then prolongs the illness.

There are many typographical errors in the book, as would be expected in a book printed by the patients of a hospital, rather than by a printing guild. They are mostly errors in spelling. The book was printed at the Potts Memorial Hospital, Livingston, Columbia County, New York. It is for sale at $1.15 through the National Tuberculosis Association, 450 Seventh Avenue, New York. G. H. H.

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SURGERY OF THE AUTONOMIC NERVOUS SYSTEM

THE EFFECT OF PARASYMPATHETIC DENERVATION ON THE RECTUM AND COLON (EXPERIMENTAL MEGACOLON)

J. H. HERSHEY, M.D.

AND

J. M. McCAUGHAN, M.D.

ST. LOUIS

Megacolon, or Hirschsprung's disease, is an uncommon but interesting condition which was first described by Ammon in 1840, and again described in 1860 by Hirschsprung whose name the condition usually bears. It occurs most frequently in infancy but has been reported in adults. The condition is characterized by an enormous distention of the colon the walls of which gradually become hypertrophied and even ulcerated. The abdomen is usually quite distended but soft and free from rigidity although a doughy mass, which is the dilated thickened wall of the colon with its fecal contents, can often be palpated through the abdominal wall. The patient does not often complain of pain or tenderness and vomiting is unusual. The most prominent symptom is obstinate constipation. Purgatives have little effect except to cause pain or vomiting. Enemata are usually retained and gas can seldom be passed without the aid of a rectal tube. The contents of the bowel are very offensive. Death usually results from cachexia, perforation or obstruction. The conservative treatment consists chiefly of enemata and massage. In severe cases, especially before the value of sympathectomy was demonstrated, complete excision of the colon was occasionally necessary.

The exact cause of this disease is not known but theories have evolved around three possibilities; namely, (1) mechanical causes such as abnormal valvular structures, torsion or the kinking of a lengthy gut; (2) developmental faults with dilatation and hypertrophy either alone or combined, and (3) neurogenic imbalance. This theory attributes the condition to a spasm of the internal sphincter, or to a paralysis of the bowel or to both, brought about by a relative overaction of the sympathetic supply. Fraser and Kuntz feel that this neurogenic imbalance is due to developmental error or delay.

The neurogenic theory has received considerable support from recent clinical and experimental work. Garry[9] has shown that division of the sympathetic nerve supply to the colon increases the tone and rhythm of the gut while cutting the parasympathetic supply results in difficulty in emptying the bowels. Furthermore, if the sympathetics had been cut previously, thus leaving the bowel contracted, subsequent division of the parasympathetics produced marked relaxation. Learmonth and Markowitz[15] showed that the sympathetic fibers apparently adapt the tonus of the colon to its contents because the sympathetic nerves, which are not easily fatigued, eventually reach a point where further stimulation fails to produce relaxation until the content of the colon had again been increased. Dilatation of the colon has been noticed at postmortem examinations in experimental animals after division of the pelvic nerves.[14, 20]

Clinically, megacolon is often relieved by sympathectomy, especially in cases not too far advanced.[5, 12, 19, 21] It is also of interest that in about 5 per cent of the cases of megacolon the urinary bladder also becomes enlarged and contains considerable residual urine. These bladders usually share in the benefits of the sympathectomy no doubt because both organs are supplied by the same nerves through the pelvic plexus.[2, 18] Disturbances of the pyloric and ileocolic regions

From the Department of Experimental Surgery, St. Louis University School of Medicine.

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

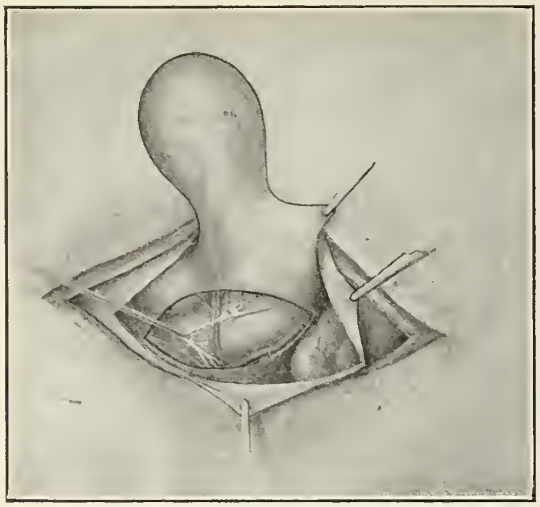

Fig. 1. Dissection of a male dog showing the sympathetic and parasympathetic nerve supply of the colon and bladder.

are not uncommon in children and these conditions, as Fraser[8] pointed out in 1926, are probably due to a neuromuscular error resulting in "an uncontrolled contractive function, a delay in the acquisition of the power of inhibition, combined it may be, with achalazia, and an insufficient relaxation of the associated sphincter." Taking these clinical and experimental points into consideration one feels that megacolon may well be due in many instances to some disturbance of the extrinsic nerve supply and that this disturbance is quite possibly due to a delay in the development of the parasympathetic division of the autonomic nervous system as was suggested by Fraser[8] and again by Kuntz.[13, 14]

Anatomy and Physiology.—The autonomic nervous system[13] in the human is formed by efferent fibers from the following three divisions: (1) The third, seventh, ninth and tenth cranial nerves; (2) the thoracic and first, second and third lumbar nerves forming the thoracolumbar division, and (3) the second, third and fourth sacral nerves forming the sacral division. The cranial and sacral divisions because of similarity of function are grouped together to form the craniosacral or parasympathetic division. The thoracolumbar nerves, whose function is antagonistic, form the sympathetic division. The efferent preganglionic fibers of the parasympathetic nerves do not pass through either the ganglia of the sympathetic chain or the prevertebral ganglia but pass directly without interruption to ganglia situated in or near the viscus which they supply. From these ganglia short postganglionic fibers then supply the viscus. The preganglionic sympathetic fibers on the other hand are short and end in the sympathetic chain or the prevertebral ganglia to form synapses with the long postganglionic fibers which supply the viscus. In this way the various organs are supplied by both sympathetic and parasympathetic fibers which differ from each other anatomically, physiologically and pharmacologically. Afferent visceral impulses pass to the cord by way of the afferent visceral components of the spinal nerves. The nervous reactions carried out through the autonomic system are essentially reflex but the afferent neurons involved are not regarded as being part of the autonomic nervous system since they are carried in the cerebrospinal nerves. For this reason the autonomic nervous system is composed of purely efferent fibers. One efferent preganglionic fiber enters into synaptic relationship with many postganglionic fibers so that there is a widespread effect from a single efferent impulse.

The vagus and sacral supply to the colon overlap. The vagus supplies the proximal end of the colon, the fibers becoming progressively fewer in number until they completely disappear in the region of the splenic flexure. The sacral nerves supply the whole length of the colon but they also diminish in number as they approach the proximal end of the colon.[20] Although dilatation of the colon following section of the parasympathetics has been observed as an incidental finding in other experiments, it was Adamson and Aird[2] who first investigated this condition *per se*. These authors were able to obtain apparent roentgen ray evidence of colonic dilatation in five out of thirty-five cats after a lapse of from four to six weeks, thirty of their animals dying of acute infection of the bladder and kidneys before dilatation had time to develop. This incidence of infection was much higher than we expected it to be from the reports of other investigators.[14, 15, 16]

Experimental Procedure.—Our experiments were performed on both dogs and cats. The dogs were females of approximately equal weight; the cats were fully grown and also of nearly equal weight but of both sexes. In both species roentgen rays of the colon were made before and at intervals after operation. The technic followed was essentially that of Adamson and Aird and consisted of the administration of a barium enema at 55 mm. of mercury. About 150 cc. was allowed to run in slowly. This we found by experience would fill the average canine colon without distention. In cats 100 cc. at the same

pressure was found to be sufficient. Several days later, under ether anesthesia and with strict asepsis, the abdomen was opened in the lower midline. The colon and bladder were drawn to one side, the peritoneum divided near the base of the bladder and the vesical artery located on the lateral wall of the bladder. The pelvic plexus and pelvic nerve were located medial to this vessel. (Figure 1.) The sympathetic (hypogastric) nerve, the pelvic plexus and pelvic nerve were in turn identified. The pelvic nerve was then sectioned and about .5 cm. removed near its origin from the sacral plexus. The posterior parietal peritoneum was then closed and the operation repeated on the opposite side. The abdomen was then closed and the animal placed in a warm kennel and maintained on a uniform diet of dog biscuit to which salmon was added for the cats. Water was given *ad lib.*

REPORT OF EXPERIMENTS

Experiment 1.—A female dog of 12 kilograms was given a barium enema at a pressure of 55 mm. mercury on June 12, 1933, for preliminary study. (Figure 2.[1]) On June 17 a bilateral parasympathectomy of the pelvic nerves was performed. Following this operation the dog became very constipated being able to pass only a few hard dry scybala. The urinary bladder at first appeared to be paralyzed but within a few days it had resumed its normal function. Appetite was poor and for two months the weight went down gradually. At the end of this time the weight became stationary, the appetite began to improve and the constipation became less marked until by the end of the fourth month the dog was having practically normal bowel movements each day. Roentgen rays were taken at intervals of about two weeks but showed very little evidence of dilatation. (Figure 2.[2, 3]) What little dilatation there was when the constipation was greatest became less marked when the constipation began to improve. At the end of six months the dog was killed. (Figure 3.[2]) Postmortem examination showed that

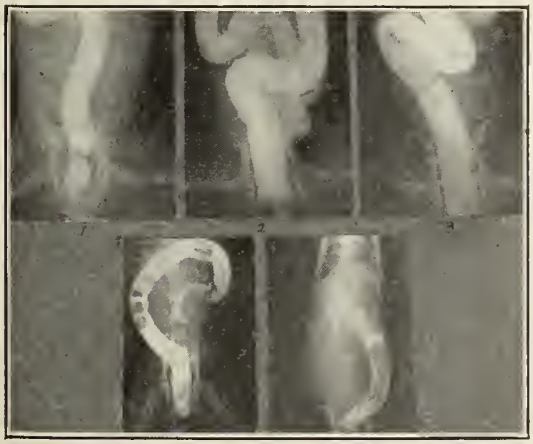

Fig. 2. Roentgenograms of the colon of dogs and cats taken before and after parasympathectomy. 1. Dog before operation. 2. Two months after. 3. Three months after operation. 4. Cat before. 5. Same cat three weeks after operation.

Fig. 3. 1. Colon of a normal control dog. 2. Colon of a dog three months after parasympathectomy. Both colons opened. Normal rugae are flattened and width of the gut is increased.

the colon was enlarged more than one would expect it to be from the roentgen ray pictures. The dilatation was greatest at the distal end of the colon becoming gradually less marked toward the proximal end. This is what one would expect when the sacral nerves were sectioned. The rugae of the lower end of the colon were also ironed out so that the mucous membrane presented a smooth surface. The kidneys, ureters and bladder appeared to be normal. Microscopic sections showed no changes except that the musculature of the lower colon appeared to be thinner than normal.

COMMENTS ON THE DOG EXPERIMENT

For some hours after operation the dogs showed retention of urine but an apparently normal bladder function was soon manifest. The colon on the other hand remained atonic and the dogs became very constipated. Later the bowels began to empty occasionally but the stools were very hard and dry. This degree of constipation was present for several months during which time the dogs were considerably underweight, appetite poor and they were liable to any infection to which they were exposed, several of the dogs dying of mange or distemper during this time. After from three to four months it was noticed that the constipation began to improve and that the stools gradually became softer. The general health also improved and after the fourth month the survivors appeared to be perfectly normal. This improvement apparently was not due to nerve regeneration as we were unable to find evidence of it on careful postmortem examination. It has been shown that the gut functions normally with both sympathetic and parasympathetic nerves cut, so it may be that the improvement which appeared in these dogs was due to the enteric nerve system taking over control of the gut. Roent-

Fig. 4. 1. Colon, bladder and kidneys of a normal cat. 2. Colon, bladder and kidneys of a cat two weeks after parasympathectomy. 3. Colon and bladder of a cat three weeks after parasympathectomy. Size of colon and bladder increased in 2 and 3 as compared with the control animal.

gen rays were taken at intervals and, although dilatation was not marked at any time, we found that the colon began to dilate gradually from the second week until the third month. About this time the barium enemas began to be expelled more readily. The dog's colon became more active and the roentgen ray showed that the colon was slightly smaller than before. At no time was roentgen ray evidence of dilatation very marked even when the constipation was most pronounced.

Experiment 2.—A cat of 2 kilograms was given a barium enema at a pressure of 55 mm. mercury on October 25, 1933, for preliminary study. (Figure 2.[4]) On November 9, 1933, a bilateral parasympathectomy of the sacral nerves and the branch from the sciatic was performed. Following the operation the cat became very constipated passing only a few hard dry scybala each day. The cat urinated infrequently and the urine gradually acquired a very pronounced ammoniacal odor. The constipation became more marked, the appetite became very poor and the cat lost weight rapidly and died of inanition at the end of the third week. A roentgen ray taken the day before it died is shown in figure 2.[5] The colon was so completely full of fecal matter that it was impossible to get sufficient barium solution in to obtain a good picture. Postmortem examination showed the colon enormously dilated, completely filling the pelvis. The urinary bladder was also dilated, the fundus reaching to within 2 cm. of the costal margin. The bladder was full of bloody urine and the mucosa showed several areas of early necrosis. Sections of the kidneys showed early signs of toxemia. The epithelium of the tubules was swollen and edematous with some areas of degeneration. The bladder epithelium was gone in some places and the submucosa showed signs of acute inflammation. The colon also had some areas of ulceration and an acute inflammatory condition of the musculature.

COMMENTS ON THE CAT EXPERIMENT

The sections of tissue from the cats were not stained for nerve degeneration but the gross specimens showed the distribution of the sacral nerves, the greatest amount of dilatation appearing where the greatest number of nerve fibers had degenerated. The clinical course of the cats was much stormier than that of the dogs. The constipation was much more severe. The rectum began to protrude soon after the operation and the external sphincter eventually became relaxed. They all lost weight rapidly, their appetites became poorer and finally they died about the second or third week after operation.

DISCUSSION

The neurogenic theory of megacolon intimates that there is an imbalance between the two sets of nerves which supply the colon with the sympathetics predominating, either because of overaction of the sympathetics or because of underaction of the parasympathetics. As we could devise no practical scheme to produce a prolonged stimulation of the sympathetic nerves we followed the method used by Adamson and Aird[2] of producing a relative sympathetic overaction by eliminating the parasympathetic impulses. The difference in results which we have obtained in these two species coincides with the paper by Gruber[10] who while working with the bladder reviewed the literature and showed that there was a considerable variation in the results with different species.

The pathology in our animals is not the same as in humans since fibrosis and hypertrophy take place gradually and our animals did not live long enough to produce this condition.

After reviewing the literature and performing these experiments one feels that megacolon in man is probably due to some disturbance in the equilibrium of the two sets of nerves; most likely a delay in the development of the parasympathetics. Cutting the sympathetic nerve supply allows the parasympathetic impulses, no matter how poor in quantity or in quality they may be, to act without opposition with the result that the dilated flaccid colon improves in tone. Even if the parasympathetic nerves do not function at all the operation may by cutting out the sympathetic impulses allow the enteric plexus to function unopposed.

SUMMARY

1. Dilatation of the rectum and colon was obtained in both dogs and cats by cutting the parasympathetic nerve supply.

2. Dilatation in the dogs was never striking.

3. Dilatation in the cats was much more marked.

4. Both dogs and cats showed marked constipation. The function of the lower bowel in dogs began to improve after the third or fourth month and the colon became

gradually less dilated. The cats, however, became progressively worse and died in from two to three weeks after operation. Urinary infection was probably a big factor.

5. Dogs are much less susceptible than cats to section of the sacral parasympathetics.

6. Postmortem examination showed a dilatation of the colon in both species which was greater than one would expect from the roentgen ray pictures.

7. Evidence has been secured which apparently confirms the work of Adamson and Aird on the experimental production of megacolon in cats.

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John W. Miller, R. R. Sayers, Washington, D. C., and William P. Yant, Pittsburgh (Journal A. M. A., Sept. 22, 1934), state that the tissue of the peritoneal cavity responds actively to a dust introduced as a foreign body, and this response is of such a character that it may be used as a basis for the classification of industrial dusts with reference to their pneumonoconiosis producing properties.

SURGERY OF THE AUTONOMIC NERVOUS SYSTEM

THE EFFECT OF SYMPATHETIC AND PARASYMPATHETIC DENERVATION ON THE URINARY BLADDER

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ST. LOUIS

The methods employed by various investigators in the study of the autonomic innervation of the urinary bladder according to Gruber[4] are four in number: (1) Physiologic experiments, (2) histological investigations, (3) anatomical observations, and (4) a combination of these methods. After reviewing comprehensively the literature on the autonomic innervation of the genitourinary system Gruber makes the following statement: "From these findings we may infer from pharmacological as well as physiological experiments that the bladder is innervated by the sympathetic and parasympathetic systems, each supplying both motor and inhibitor impulses and that there is no difference between the effects of these two systems except the possibility that the parasympathetic nerves carry stronger impulses."

Many of the physiological and pharmacological investigations reviewed by Gruber were based on acute experiments and, while such methods constitute a valuable and very necessary means of research, certain objections may very reasonably be entertained. For example, Garry,[3] after studying the nervous control of the large bowel, held that laparotomy of itself was a disturbing factor and advocated for acute experiments a technic of denervation which was carried out retroperitoneally. He stated, "If the peritoneal cavity be opened beforehand such powerful inhibition is understandable and division of any part of the lumbar outflow can give no true indication of the normal impulses passing along the lumbar outflow. In the present series, however, the integrity of the peritoneal cavity was jealously guarded before division of the lumbar outflow. It may be that the marked inhibition is due to the recent operative interference in acute preparations." Another objection is the use of anesthesia. Many invesigators, particularly MacDonald and McCrea,[9] have called attention to the effects of anesthesia in vary-

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From the Department of Experimental Surgery, St. Louis University School of Medicine.
Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

ing the experimental results. Furthermore, Adamson and Aird,[1] in their work on experimental megacolon in cats, found that a number of weeks were required for dilatation of the colon to become apparent following parasympathectomy and thus another factor, that of the time elapsing since the interruption of the autonomic fibers, must be considered. There seems also to be a difference of opinion as to the remote effects of such a procedure on the urinary bladder and Adamson and Aird report that urinary retention developed in their cats and that attempts to overcome urinary difficulties by intermittent or permanent catherization always led to infection of the bladder. Twenty-five out of thirty of their animals died at intervals of from five to ten days following operation. The cause of death in all of these was renal failure caused by urinary stasis and infection. Schmidt,[17] on the other hand, divided the sacral nerves in cats and made histologic studies after three weeks by means of pyridine silver sections. These showed complete nerve degeneration throughout the entire colon. The urinary bladders, however, were not studied histologically but urinary retention or infection did not occur.

Potter[11] determined the intravesical pressure immediately and remotely after sectioning both sacral nerves in the dog. He found that in general they were the same as the preoperative readings and concluded that this procedure in the dog did not affect the vesical tone nor the mechanism of micturition. Neither retention of urine nor a reflex of urine up the ureter occurred.

Still another objection is to be found in the variations in experimental results obtained not only from different species of animals but also from among animals of the same species[2]; furthermore, variations occur from time to time even in the same individual animal.[9] It would seem more logical, therefore, to individualize experiments of this character and to compare more particularly the results of denervation in a given animal with its previously recorded response to some well-devised experimental method for estimating both the neurogenic and myogenic function and to repeat such observations over a considerable period of time.

In clinical urology Rose and his co-workers[12, 13, 14, 15, 16] advocated cystometry, or the measurement simultaneously of the intracystic capacity and pressure, as a valuable diagnostic procedure in neurogenic dysfunctions of the urinary bladder but results not altogether confirmatory have been obtained by others.[10, 18] However, the method with slight modification appeared to lend itself well to the objective of these experiments and hence it was employed.

Experimental Procedure.—Cystometric observations were made on unanesthetized female dogs which had been previously trained to lie quietly throughout the period of instrumentation. These observations were made before, shortly and then remotely following sympathetic and parasympathetic denervation of the urinary bladder. The method used for making cystometric records has been fully described in previous publications[10, 12] but in brief the technic consists in introducing a two-way catheter into the urinary bladder of the dog emptying the bladder completely. The cystometer consists of a combination water and mercury manometer. The outlet tube of the water manometer is then attached to one side and the inlet tube of the mercury manometer to the other side of the two-way catheter. Isotonic saline at body temperature is next forced into the bladder at a uniform rate of speed by means of a pump. At the same time the changes in intracystic pressure are indicated by means of the mercury manometer. These changes are graphically recorded on a kymograph which synchronizes the variations in both bladder capacity and pressure. The filling is carried to the point of moderate over-distention and the bladder is allowed to empty slowly. The test was routinely repeated several times at each examination. Although subjective sensory experiences are not available during the filling of the bladder as in the human subject, nevertheless vesical over-distention in dogs is invariably indicated by the increasing restlessness of the animals.

The operations were performed under ether anesthesia with strict regard to asepsis. Through a midline incision the bladder and rectum were drawn laterally and the posterior peritoneum overlying the base of the bladder was divided for a distance of 6 cms. in a longitudinal direction. The pelvic nerves (parasympathetic) were then identified and a segment 1 cm. to 1½ cm. was excised from each. The hypogastric nerves were dealt with in a similar way when sympathetic denervation was desired instead. In either case after neurectomy the posterior parietal peritoneum was closed with a running suture before making the abdominal closure. The animals were kept in appropriate cages and fed a uniform diet of dog biscuits and all the water desired. The urine

was examined repeatedly for evidence of infection. At the end of the experiments the animals were killed under ether and a careful postmortem examination was made.

Experimental Results.—The following protocols are typical of the experiments.

REPORT OF EXPERIMENTS

Experiment 1. Bilateral Parasympathetic Denervation of the Urinary Bladder. Preliminary cystometric records were made on a female dog of 8 kilograms weight. The urine was examined repeatedly and found normal. A parasympathetic denervation of the urinary bladder was done on February 21. The animal made an uneventful recovery. Cystometric records were then made postoperatively and the urine on each occasion was normal. Figure 1 shows the typical cystometric curves for this particular animal before and after division of the parasympathetic nerves. This animal was killed June 12 under ether narcosis and a careful postmortem study made. The urinary bladder, ureters, kidneys, colon and rectum grossly presented nothing abnormal. The parasympathetic nerves had been divided.

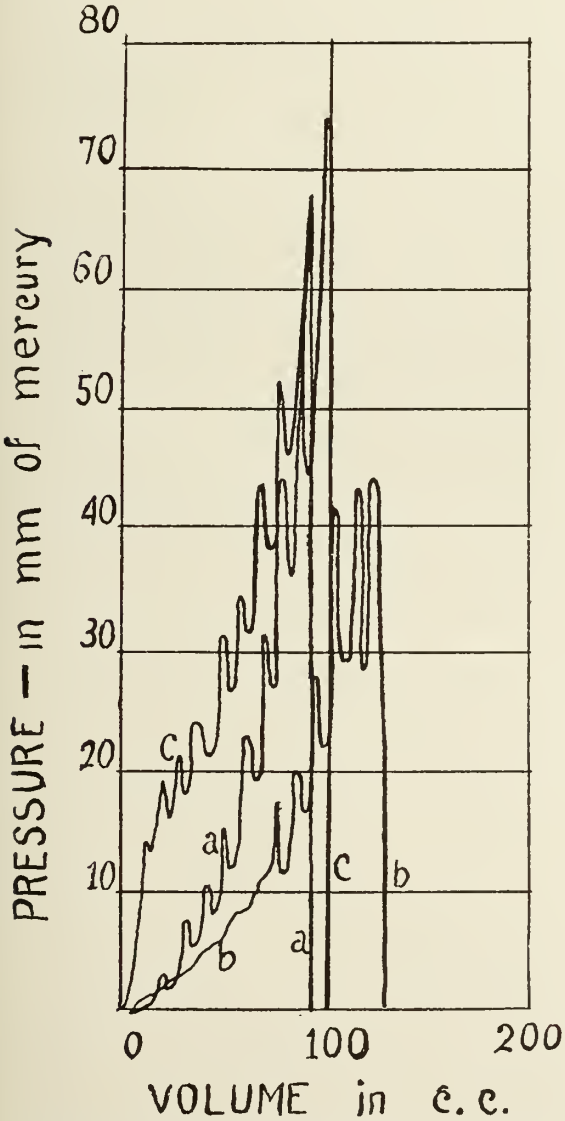

Fig. 1. Bilateral parasympathetic denervation of the urinary bladder: (a) Preoperative cystometrogram (b) cystometrograms 3 days after operation, (c) cystometrogram 51 days after operation.

COMMENT

In curve b made three days following parasympathectomy the intracystic pressure is lower by approximately 23 mm. of mercury and the intracystic capacity greater by 30 cc. than in the preoperative cystometrogram. Curve c obtained fifty-one days after operation shows a slightly higher bladder pressure and about the same capacity as before denervation. These variations did not seem significant inasmuch as cystometrograms made on normal control animals at different times frequently show a range of variability quite as great as this. For practical diagnostic purposes their differentiation presents a problem of considerable difficulty.

Experiment 2. Bilateral Sympathetic Denervation of the Urinary Bladder. Preoperative cystometric records were made on a female dog of 13 kilograms in weight. The urine was normal. On October 23 the sympathetic nerves of the urinary bladder were divided. The course after operation was uneventful and cystometric studies were made subsequently at intervals. The urine on examination was consistently negative. Figure 2 shows the cystometric curves before and after sympathectomy. This animal was killed February 27 under ether narcosis and a careful postmortem study made. The urinary bladder, ureters, kidneys, colon and rectum grossly presented nothing abnormal. The sympathetic nerves had been divided.

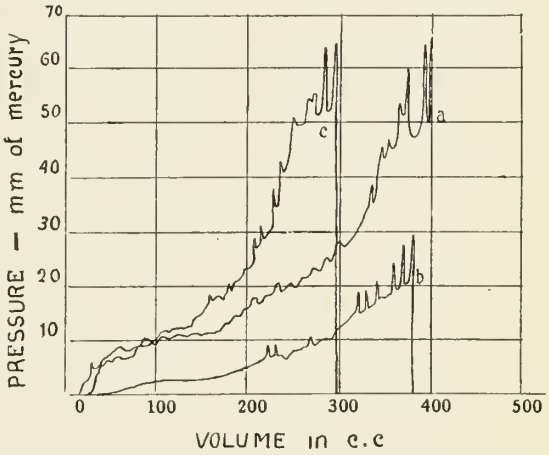

Fig. 2. Bilateral sympathetic denervation of the urinary bladder: (a) Preoperative cystometrogram; (b) cystometrogram 7 days after operation, (c) cystometrogram 68 days after operation.

COMMENT

Curve b obtained seven days after sympathectomy shows a proportionately greater

fall in bladder pressure than in bladder capacity; yet, on theoretical grounds one might have expected a greatly increased intracystic pressure and a markedly diminished intracystic capacity due to the overbalancing effects of the parasympathetic nerves. In curve c made 68 days after operation the bladder pressure is at least equal to that recorded prior to denervation but the intracystic capacity is less by 25 per cent than before operation. This may, of course, be due to parasympathetic overaction appearing late after operation; but on the other hand cystometrograms on normal control animals are equally dissimilar.

DISCUSSION

In discussing the etiologic factors in the pathogenesis of the so-called cord bladder, a majority of writers call attention to two major possibilities: (1) A condition in which the fibers of one side of the autonomic system have been destroyed by disease giving therefore complete nervous autonomy to the respective antagonist and resulting in sympathetic or parasympathetic overbalance as the case may be, and (2) the lesion in place of being destructive in character may act as a nerve irritant and prolonged or increased stimulation takes place with a resulting autonomic imbalance in a similar sense as before.

The evidence, from the experimental as well as from the clinical literature, is somewhat confusing as regards the relative importance of these two modes of causation in vesical nervous imbalance. The data of laboratory experimentalists largely supports the view that a division of the extrinsic nerves of the bladder has little if any immediate or remote effect on the physiology of micturition. On the other hand, recent studies in several human subjects by Learmonth[5, 6, 7] favor a belief in the efficacy of the surgical treatment of sympathetic or parasympathetic imbalance by neurectomy of the overacting side.

Unfortunately, disease accomplishes in man with relative ease conditions which are most difficult of experimental reduplication. The prolonged stimulation of nervous tissue in the intact unanesthetized laboratory animal is no small problem. Nevertheless, Loucks[8] recently has suggested an ingenious method of stimulating a coil embedded subcutaneously from which insulated wires could be led down to electrodes situated at the point to be stimulated. When the primary of an ordinary induction coil was laid on the skin adjacent to the buried coil an induced faradic current was set up in the latter and transmitted to the electrodes. It would be extremely interesting to apply such methods or a modification to further investigation of problems in bladder neurophysiology.

In the present study the sympathetic and parasympathetic supply to the urinary bladder was destroyed experimentally for the purpose of investigating the effects if any of this procedure on the physiology of micturition. Our data was obtained by making cystometric determinations on unanesthetized dogs before, soon after and remotely following autonomic neurectomy. In these experiments vesical dysfunction, as indicated by frequent cystometrograms, clinical observations and postmortem examination, failed to occur when either sympathetic or parasympathetic nerves had been destroyed.

CONCLUSIONS

In the dog experimentally produced destructive lesions of the sympathetic and parasympathetic nerve supply to the urinary bladder cause no significant disturbance in bladder function. The variations observed in cystometric curves made early and late after denervation were not sufficiently striking to be of much diagnostic value. Our conclusion is also supported by additional evidence such as the absence of urinary retention or frequency and the finding at postmortem examination of grossly normal urinary organs. The pathogenesis of cord bladder is discussed.

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DISCUSSION

Dr. L. R. Sante, St. Louis: I would like to call attention to the use of the roentgen ray examination in observing the effect of experimental work. We are all familiar with its use in showing the progress of disease; why cannot this same method be used to great advantage in experimental work as well? It has been used to some extent but the field is practically untouched. The use of the roentgen ray in observing the results of experimental procedure has great advantages over older methods. For instance, we have an opportunity for a long period of time of noting the exact conditions which prevail with the animal preserved and its functions intact. We do not have to kill animals at various periods after operation in order to see what is going on. It seems to me this is particularly applicable to bones, the chest and the gastro-intestinal tract. Then the physiological action of drugs on the gastro-intestinal tract can be observed. Many things have already been observed in that way, for instance, the effect of atropine in relieving spasm.

I think this particular field of observation of the effect on the gastro-intestinal tract of denervation or stimulation over a long period of time is particularly suitable to this method of examination.

The field of clinical investigation also merits considerable thought and perhaps will in the next generation be one of the most outstanding methods in the advancement of our knowledge of disease.

Dr. W. T. Coughlin, St. Louis: The work of these gentlemen should be commented on and encouraged.

It is a fact that in operating on the sympathetic and lumbar region from time to time patients have told me that their constipation was relieved; and I remember one patient who used to have to get up frequently at night to urinate who told me that he did not have to do that now. On going back over the histories I found I had passed the vein stripper well down into the pelvis (I always remove the ganglia with a vein stripper, my own special method) probably as low as the fourth sacral. There is the presacral nerve coming down in front of the promontory of the sacrum and it has been stated that if we cut that nerve we will produce a constriction of the pelvic colon and of the rectum. I have had occasion to try that out. I would like to show you a slide or two of a case of megacolon on which I operated, reasoning thus: If it is true as has been stated that the cutting of the pelvic nerve can cause constriction of the colon it would be an advantage in a case of megacolon which hitherto surgery has not offered.

It was thought that if we could cut the nerves causing the dilatation of the lower colon, perhaps we could cure the condition; but all the nerves causing dilatation of the colon do not come down through the pelvic nerves; they also reach the colon via the sheaths of the mesenteric arteries, superior and inferior and so, in order to make the operation a success, it would be necessary to paralyze the sympathetics that go with these vessels. I have not been able to try it out but it seems that if we were to paralyze the nerves that cause distention of the colon we would have to paralyze all of the nerves around both the superior and inferior mesenteric arteries. And there we are in a quandary because here are the nerves that cause not only dilatation but also those which cause constriction. In this case of megacolon the pelvic nerve only was cut, the lower colon and rectum were utterly collapsed and that led to the death of the child. The distended colon above simply buckled down abruptly over it and at autopsy we found distention of the colon above which pressed on the colon below and caused total obstruction and death.

PROGNOSIS AND THERAPEUTIC MANAGEMENT IN AMBULATORY CASES PRESENTING THE ANGINAL SYNDROME

ELSWORTH S. SMITH, M.D.

ST. LOUIS

Severe sternal or substernal pain incited by exertion, emotion, shock or partaking of indigestable food, overloading of stomach, exposure to cold, with the pain radiating at times to left or to both arms, occasionally into neck and jaws, relieved frequently by compulsory or voluntary ceasing of physical effort; such a combination of symptoms constitutes the anginal syndrome, a syndrome which is present in several diversified conditions, and which may be well divided into (1) those which are extracardiac in origin, and (2) those cardiac in origin.

In the extracardiac class no cardiac element is discoverable as in cases (1) associated first with esophageal or gastric symptoms from stomach distension and where relief can frequently be obtained by the simple passage of the nasal tube; or (2) cholecystitis controlled by cholecystectomy, (3) in cases of severe prostatitis, (4) highly neurotic individuals may suffer with what appears to be fairly severe attacks of the anginal syndrome when close study fails to disclose any definite organic disease. The prognosis is good in this group if the extracardiac causes can be removed.

The anginal syndrome on the other hand may be associated with the following cardiac or circulatory disorders, viz.: (1) Chronic aortitis, especially when occurring with aortic dilatation, which may be due at times to

Tabulations in the tables were made by Dr. H. S. Liggett, St. Louis.

general arterial hypertension, or more generally to syphilis; (2) myocardial failure from different causes; (3) true angina pectoris. Here, of course, in this affection the prognosis must necessarily be rather grave, and yet not as hopeless as it has often been considered.

There are many cases which do not succumb to this disease as we shall presently see, though the laity, probably through at times too pessimistic horoscopes being cast for the poor victims of this trouble, has come to consider the words angina pectoris as entirely synonymous with sudden or early death, which we feel is not altogether fair to the subjects of this malady.

Thomas McCrae[1] for instance asks the question: Is angina pectoris always due to coronary disease? His view is that "Angina pectoris is a clinical syndrome with no definitely recognized pathology, and hence its limits are difficult to state and there may be doubt as to whether a given case should be so designated." He notes further the increasing tendency to consider the clinical syndrome of angina pectoris as due to coronary artery disease exclusively and to include the features of acute coronary occlusion as a special form of angina pectoris.

Harlow Brooks[2] writes, "The outlook in angina pectoris is always serious, but not nearly so much as it was thought in the past. Many cases with transient curable lesions recover entirely. Some cases die in the initial attacks, while others live for years; the difference depending in part on their manner of life but primarily of course on the nature of the causative factors."

Coronary thrombosis or occlusion is without doubt the most grave, from the standpoint of life expectancy, of all the conditions with which the anginal syndrome is found associated. Yet even in this dark picture a few rays of hope may pierce the clouds—for Herrick[3] of Chicago, who gave us probably one of the earliest and most accurate descriptions of this disease entity, writes in his original historical paper on this subject as follows: "But there are reasons for believing that even large branches of the coronary artery may be occluded, at times acutely occluded, without causing death, that is in the immediate future. Even the main trunk at times may be obstructed and the patient live, the influence of the vessels of Thebesius may supply through these compensatory channels nourishment for areas of the heart muscle poorly supplied by sclerosed or obstructed vessels." Paul White[4] states, "The course and prognosis in coronary thrombosis are so variable that they must be considered individually in every case. The condition unsuspected during life may be found at autopsy, after a noncardiac death in ripe old age, or in a fulminating case death may occur in a few hours or a few days." Again he says, "When coronary thrombosis can be recognized clinically the prognosis is always grave; most cases, however, survive the immediate attack and half of this total survive for years, a few for even ten years or more." He writes of the case of a man who died of apoplexy at the age of 80 and showed at necropsy a firm scar in the heart muscle resulting from the healing of an infarct which occurred seventeen and one half years before. The heart was otherwise in good condition anatomically and so sound functionally that ten years after the heart attack the patient was able to climb a mountain at a fast pace without symptoms at the age of 75 years.

We quote also from Carry Eggleston[5] as follows: "If death does not occur after a few days or a week recovery may be expected or recovery may be so incomplete that the patient dies from congestive heart failure in a few weeks or months. In other cases recovery is sufficient to allow the patient to lead a greatly restricted life for a few years. Finally healing may be complete and patient may become as well as before occlusion. Such cases are usually those of closure of medium sized vessels."

And may we not from the above expert opinions be inclined to feel, even in this affection, coronary thrombosis, the most grave of all the maladies in which the anginal syndrome occurs, that while the prognosis must be grave still it must not be considered entirely hopeless, but may at least extend, under certain conditions, some hope and comfort to the unfortunate subjects of this disease, which is so dreaded by the general public, who consider it as simply another manifestation of angina pectoris.

Thus has been presented the expectancy of life when the anginal syndrome occurs in both the extracardiac and cardiac groups, especially because of the important bearing such life expectancy imparts to the consideration of the prognosis and later therapeutic management of ambulatory cases presenting this same anginal syndrome, a group in which we have for some time been quite interested because of its rather marked importance and also because very vaguely referred to in the literature of affections of

the coronary circulation. The symptoms that most of these cases complain of is the effort syndrome, namely, substernal pain (generally of lower one half) of greater or lesser severity incited by physical efforts, which may or may not radiate into the arms and neck, and which generally subsides with voluntary or compulsory cessation of effort; or this substernal pain may be caused by various emotions and excitements and shock, and especially by the worries and strains of the strenuous life of today.

As a certain percentage of this ambulatory group may later develop either true angina pectoris or coronary thrombosis it behooves us to study them carefully. This study should embrace thorough painstaking histories, physical examinations and electrocardiographic tracings to determine whether they belong to the extracardiac or cardiovascular groups. Further must the absence or presence be determined of coronary disease with secondary myocardial damage through and ofttimes repeated electrocardiographic studies so as not to overlook any coronary artery or myocardial lesions.

But while the group of patients now under consideration must always be thought of as potentially cases of angina pectoris or coronary thrombosis, still we must remember that they are not suffering with such maladies as yet, and may never in the future, or at least for long periods of time. This affords a propitious opportunity of bringing to bear prophylactic measures to postpone the evil day; and further we must not forget that in all these subjects of the anginal syndrome, even those with organic lesions, there is often a more or less neurotic element present which when very marked may be sufficient to make of such patients hopeless nervous wrecks through being bluntly told, for instance, that they have the very serious trouble angina pectoris, a term that with the laity carries with it always sudden or sure death. We believe with the late Sidney Thayer[6] of Baltimore who has spoken as follows concerning the imparting of the diagnosis and prognosis of angina pectoris to these patients: "Wise advice is the most important part. It is the personal element that counts, the tact, the judgment, the kindliness of the doctor, the willingness to take the time to explain matters properly, to break the unpleasant truths to him in such a way that he will look on the hopeful side. The word angina should be avoided." This advice from the astute clinician Thayer we may all follow with profit in this class of patients, through which while infusing them with hope and courage we at the same time command that full cooperation on their part so necessary to their carrying out the required regimé; for it will do these cases no good to give them facts which will only do them harm. It is far better to confide these facts to a responsible member of the family for the satisfaction of those intimately concerned and also for the protection of the physician. The prognosis handled in this way is of the greatest assistance in the therapeutic management of these cases which we will now in conclusion briefly consider.

The regimé is most important; patients must be impressed with its importance in carrying out its every detail to the letter, while the doctor on the other hand should take the time to go into all the details of the regimé with his patient explaining it fully. Then too the mode of the patient's life must be studied carefully, especially his habits of life. If his life is strenuous starting the rush of the day with a hurried dressing and breakfast, all this must be changed and he must be taught the lesson of coming down from first to second or third speed and adjusting his days accordingly. Excesses in tea and coffee and food, nicotine and alcohol must be checked. Also sexual intercourse, if exciting anginal pain must be interdicted, straining at stool due to constipation must be corrected. At least eight hours of sleep should be had at night and from 1 to 2 hours of rest after noon meal.

We shall take as illustrating the therapeutic management that special group of ambulatory patients with the anginal syndrome who present especially the effort syndrome and who constitute the greater number of this entire group. In these cases the anginal syndrome is especially excited by any form of physical effort; when this syndrome is brought on by the slightest efforts the first indication is to put such a patient at complete rest in bed for at least 4 to 6 weeks; after that he is allowed up very gradually. After patient is again allowed out of doors he must be advised to stop immediately when the anginal pain comes on and not start walking again until all pain is gone. Many a patient has lost his life trying to continue walking while anginal pain is present for fear of disclosing his trouble to others. Walking soon after eating or up grades or stairs or in cold air should be avoided. Reduction cure in the obese often has a very marked controlling effort on the anginal

syndrome. As to drugs; those of the vasodilator group are the most effectual as amyl nitrite inhalations or nitroglycerin 1/100 gr. tablets under the tongue during the presence of the anginal pain, and morphine if required.

We agree with Harlow Brooks that the anginal syndrome of relatively early or even in some cases of late syphilis may be entirely cured by antiluetic treatment. Also in many syphilitic cases and others of different origin iodides may be beneficial and even if Wassermann be negative a consistent course of antisyphilitic treatment is often helpful. Should there be arterial hypertension it should be controlled if possible by low protein diet; if nonprotein blood nitrogen be high, combined with luminal, especially if there is a nervous element. Luminal has also been used with good results in the control of general arterial hypertension. A combination of 5 grains theobromine and 1 grain of luminal called theominal, acting especially as a vasodilator of the coronary arteries is also very good as vasodilator and a sedative.

The thoughts conveyed in the preceding pages have largely resulted from a careful observation of thirty-one cases occurring in our service of ambulatory cardiovascular disease presenting the anginal syndrome of effort as follows: First, as to life expectancy in this class of cases; second, as to return to gainful occupations for some of these cases for shorter or longer periods of time, all of which is graphically presented in the accompanying tables.

Table 1. *General Grouping*

39 Ambulatory Cases Presenting Anginal Syndrome	Number of Cases	Per Cent of Whole
Non-Cardiovascular:	8	20.5
A Gastro-Intestinal type	3	7.7
B Neurotic type	5	12.8
Cardiovascular:	31	79.5
A Aortic disease and lues	3	7.7
B Hypertension	4	10.2
C Angina pectoris, early or late	12	30.7
D Coronary thrombosis	5	12.8
E Simple anginal syndrome	7	18.0

Summary of all cases studied, showing general classification and division of groups.

Table 2. *Ambulatory Cases Not Developing Angina Pectoris or Coronary Thrombosis*

Age	Sex	Years Under Observation	
65	F	10½ years.	Limited activity; hypertension
51	M	9½ years.	Died cerebral hemorrhage
60	F	7 years.	Limited activity; hypertension
48	M	5½ years.	Works as a tailor
59	M	3¾ years.	Died myocardial failure, no pain
47	F	2¾ years.	Light housework
60	M	2 years.	At business as a jeweler
61	M	1 year.	Unable to work as blacksmith

Showing eight cases remaining as simple ambulatory cases of anginal syndrome for an average period of five and one half years without ever developing either angina pectoris or coronary thrombosis.

Table 3. *Ambulatory Cases Developing Angina Pectoris or Coronary Thrombosis*

Age	Sex	Time Elapsing Between First Sign of Anginal Syndrome and First Definite Attack of Angina or Coronary Thrombosis.
46	M	7¼ years before sudden anginal death
63	F	5¾ years before sudden fatal pulmonary edema
75	M	5 years till incapacitated; sudden death two months later from angina
62	M	4¾ years before incapacitation from pain; anginal death in 4 months
54	M	9 years before coronary occlusion; death in 1 year
59	M	3½ years before severe cardiac decompensation and death from heart failure
57	M	1½ years before sudden anginal death
62	M	1¼ years before fatal coronary occlusion
68	M	1½ years before sudden anginal death
43	M	1¼ years before sudden anginal death
65	F	7 months before sudden anginal death

Showing eleven cases of ambulatory anginal syndrome remaining as such five and three eighths years before developing either angina pectoris or coronary thrombosis.

Table 4. *Cardiovascular Group*

31 Cases	Cases	Per Cent
Angina pectoris	12	39
Coronary thrombosis	5	16
Remaining as anginal syndrome	14	45

Among thirty-one cases twelve were sooner or later diagnosed angina pectoris and five developed definite coronary thrombosis; still fourteen or nearly 50 per cent have remained as cases of simple anginal syndrome.

Table 5. *Life Duration of Different Groups*

	Cases	Living	Dead
Angina pectoris	12	1 yr., 7 mos. (3 cases)	4 yrs., 3 mos. (9 cases)
Coronary thrombosis	5	0	2 yrs., 2 mos.
Remaining as anginal syndrome	14	4 yrs., 5 mos.	0
Non-cardiovascular	8	3 yrs., 8 mos.	0

Duration of life in the different groups. Three out of twelve cases of angina pectoris were living after an average period of one year and seven months, with a chance of a longer life expectancy, and nine fatal cases had lived an average period of four years and three months before death, making an average total period of life for this angina pectoris group of five years and ten months. The five cases of coronary thrombosis had lived an average period before death of two years and two months; while the fourteen cases remaining of the anginal syndrome had been living four years and five months with a prospect of a longer life expectancy thus making a grand total of average time lived by the combined angina pectoris and coronary thrombosis and simple anginal syndrome groups of twelve years at the time this study was made.

Table 6. *Result of Treatment*

	Cases	Improved	Returned to Gainful Occupations	Unimproved
Aortic Disease and Lues	3	3	2	0
Hypertension	4	4	4	0
Angina pectoris	12	11	10	1
Coronary thrombosis	5	4	4	1
Simple anginal syndrome	4	3	3	1
Neurotic type	8	8	8	0

Results of treatment in all groups with number of cases restored to gainful occupations for greater or lesser periods of time.

Some interesting results of treatment are shown in the following cases.

REPORT OF CASES

Case 1. B. W., aged 48 years, under observation December 29, 1914, to January 15, 1915, at Mullanphy Hospital.

Severe effort anginal syndrome associated with luetic heart disease and cardiac decompensation. Treated with luetic remedies for period of his

hospitalization resulting in effort anginal syndrome and cardiac decompensation being completely controlled and without any relapse in these symptoms up to time of his death from cerebral hemorrhage on March 19, 1924, a period of 10 years. These luetic cases have also anginal pain at night while at rest which is very suggestive of lues.

Case 2. A. S. Aged 48 years, tailor, Belleville, Ill. April 2, 1926, pain when walking, getting out of bed, stooping to lace shoes or talking, which disappears after ceasing these efforts. Sometimes helped by yawning or belching. Pain substernal and involving both pectoral regions, but not reaching arms; no hypertension. Wassermann negative. Put at complete rest. May 21, 1926, still spending most of his time in or near bed. September 13, 1926, can now walk 8 to 10 blocks with no anginal pain. From this date on he has been able to get about within his physical limitations and able to transact his business as a tailor with no return of anginal syndrome when last seen, September 25, 1933.

Case 3. W. B. Aged 60, first seen September 25, 1930. Nervous over business. Anginal syndrome for a month on walking, subsiding with rest, pain forcing him to stop walking. Hypertension since a boy. Br. K. I. and to live within his physical limitations. June 5, 1933. While hunting last fall walked 10 or 12 miles which disturbed his low arches, but not in the least his heart. The other day he said he was feeling fine and had no longer any heart pain and not missing business a day at his jewelry store.

Case 4. Mr. V., aged 60 years, hypertension with arterial sclerosis. Typical effort syndrome, starting 3 years before. May 18, 1928, effort syndrome greatly relieved by a life strictly within his physical limitations and also by vasodilators to control his arterial hypertension until death, March 13, 1930, from coronary occlusion. A period of four and three fourths years from onset.

Case 5. Mrs. W. R., aged 49 years. November 25, 1929, luetic heart disease. Hypertension. Placed at complete rest at St. Luke's Hospital. Effort anginal syndrome. Placed on protoiodide of Hg. February 12, 1930, anginal pain much less. April 14, 1930, feeling fine doing her housework. No more anginal pain. May 8, 1933, last seen this date and up to that time had no more anginal pain, which was a period of 3 years.

In one of the more recent cases the result obtained deserves a more detailed account.

E. S., male, aged 64 years, came under observation December 12, 1932, complaining more or less for the last year of substernal pain, but for the last month has been unable to walk a block before forced to stop on account of the severity of the pain under sternum radiating through to interscapular region and also into lower left thoracic region; pain always worse when walking after a meal.

Family and previous history irrelevant except that he had always been rather a free liver and that he denied lues.

Heart enlarged slightly to left and some increase in width of aortic dullness. Systolic aortic murmur conducted up into great vessels. Roentgen ray showed diffuse dilatation of aorta but no sacculation. Wassermann four plus. He was immediately placed on 1/6 gr. protoiodide of mercury one pill t. i. d., to increase one pill every fourth day to the point of tolerance, which with this drug is pretty constantly manifested by colicky abdominal pains and loose bowels; very rarely is there any manifestation of salivation; when the patient thus attains to his point of tolerance the dose is reduced one half and which dose can pretty constantly be indefinitely continued with occasional readjustment of dosage, which we consider a great advantage in this drug. In fact with this remedy we rarely have to resort to the arsenicals. Our patient's maximum dose proved to be four pills when after the subsidence of the intestinal irritation he was placed on one pill two times daily, which he has been taking with some change in dosage ever since reaching his point of tolerance, except at one time reaching six pills daily—guided by the symptoms and increased tolerance of the drug. On January 10, 1933, a little over a month after being placed on treatment, patient was able to walk sixteen blocks from his office to his club and back without the slightest pain. May 10, 1933, out in country walked four miles and at times up and down hills without any discomfort. September 14, 1933, can now walk about comfortably and with as little attention paid to his walking as before experiencing his first substernal pain.

IMPRESSIONS

1. It must be borne in mind that while these individuals presenting the effort syndrome in the cardiovascular group are always to be considered as potential cases of either angina pectoris or coronary thrombosis still a certain proportion of them never do develop either of these diseases so dreaded by the laity; or they do so only after long periods of time affording thereby a propitious opportunity to bring to bear early prophylactic measures for the possible prevention or postponement of these two so alarming affections.

2. The accompanying charts also show that even though a certain percentage of these cases may in time actually develop either angina pectoris or coronary thrombosis, the prognosis even with the development of either of these complications is not so grave as it has been considered in the past.

3. Therefore, do not make of your ambulatory patients affected with the coronary syndrome hopeless invalids by bluntly telling them their anginal syndrome means that they will even possibly develop angina pectoris or coronary thrombosis; you thus rob them of their best chance of improvement by causing utter demoralization amid these anxious sufferers. Confide all serious prognoses to a responsible family member.

4. Rather, secure their confidence by a thorough study and sympathetic explanation of their cases, giving necessary time to go exhaustively into details and extend to them the encouragement and comfort that if they will cooperate faithfully they may look for either partial or more complete relief of their symptoms with probable escape of any serious complications.

5. Faithful and prolonged therapeutic efforts on the basis herein outlined with a

hopeful cooperative patient and a sympathetic painstaking physician should ensure that full confidence on the part of the patient and that complete control on the part of the doctor two factors which strongly make for prevention or cure or alleviation of disease in the practice of medicine.

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TERTIAN MALARIA WITH UNUSUAL TYPE OF SKIN MANIFESTATION

REPORT OF A CASE

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This case is reported because I have been unable to find record of a case of malaria with concomitant skin lesions identical to those herein described. Only the clinical aspects of the case are stressed in this presentation as adequate laboratory facilities for obtaining detailed findings were not accessible. Only such meager laboratory data as our own equipment enabled us to gather are offered.

The unusual nature of the case was too intriguing to allow me to pass it by without mention so the reader may accept the paper for what it is worth in view of its more or less unscientific nature. The paper is merely intended to record the clinical aspects of the case as I have observed them. I am fully aware of the hemolytic properties of the Plasmodium and also of its ability to produce hemorrhage from various parts of the body, especially from the mucous membranes. However, although the literature may contain descriptions of such cases of which I am not aware, I feel confident it is seldom that the appearance of blood is encountered in the manner to be described.

I might add in passing that physicians who have dealt with malaria have probably all seen cases of intracutaneous and subcutaneous hemorrhage, which has the identical appearance of the hemorrhage seen in purpura hemorrhagica. In fact the similarity is so striking that one is likely to err in diagnosis unless one is careful to make a blood smear examination or finds other evidence of malarial infection. The foregoing statement is made upon the presumption of examination of skin only since it is obvious that no one will make a diagnosis on skin appearance alone in actual practice.

REPORT OF CASE

On September 9, 1933, I was called to see S, white female child, aged 3 years. The parents gave the following history: The child became ill about three weeks prior to the date I was called. As a matter of fact the child had been rather apathetic and unresponsive to its surroundings for possibly a month and a half but had not displayed any symptoms of severe illness as such until the time stated. The mother had not considered the child as having been ill during the period of apathy but had been inclined to attribute its lack of interest and its inactivity to the extremely hot weather.

The onset of the acute phase of illness was quite precipitous having been ushered in with the usual severe chill followed by a rapid rise in body temperature. The fever was very high, so the mother stated, although the exact temperature was not known since the family possessed no thermometer. Thereafter chills appeared at regular 48 hour intervals with gradual decrease in severity under treatment with the usual "garden variety" of patented chill remedies. The one used, so far as I can learn, is a weak cinchona preparation. In addition some patent remedy was also used for the concomitant diarrhea without favorable result.

At the end of two weeks of such treatment the chills had ceased but the fever continued to appear at regular 48 hour intervals. For three or four additional days the same treatment was continued by the parents at the end of which time the skin lesions in question appeared. The lesions were first noted on the morning of September 9 and were the stimulus to the parents to call a physician. All the lesions were well raised blebs. No papules or pustules were seen.

Distribution.—The lesions appeared practically over the entire skin surface with the exception of the soles of the feet and the palms of the hands. They were rather close together the space between lesions varying from about 2 to 6 millimeters.

Size.—The lesions varied from about the size of an air rifle shot to about a half centimeter in diameter. The larger lesions were for the most part formed by the coalesence of several smaller lesions.

Shape and Contour.—The lesions were variously shaped from perfectly round to very irregular and lacking in definite shape. Observation, as time went on, revealed that all newly appearing lesions were round and regular becoming larger and more irregular with the passage of time. The changes in shape occurred rapidly, some of the round lesions becoming larger and irregular by the following day. In speaking of time we are speaking in terms of hours since all the observations as to changes in characteristics were noted by the following day and before the lesions were seen to be disappearing. Some of the lesions, however, apparently remained round to the time of their disappearance.

Characteristics of the Lesions.—These blebs deserve minute description as to structure. The small round lesions reminded the writer of the appearance of small stained lymphocytes as they appear under the microscope. The darker portion of the blebs was more often centrally located, red in color and deep beneath the overlying skin, which, because of its transparency appeared also to be the same color. The periphery of the lesion was light in color, or rather transparent, and was very narrow. In some of the

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lesions the darker portion was eccentric occupying possibly three fourths of the surface area underlying the thin epidermal covering of the bleb while the lighter colored portion lay to the side opposite and appearing as a narrow peripheral or marginal crescenteric area. As to the larger irregular lesions, the proportion of darker and lighter areas was approximately the same although the lighter colored area, in all lesions observed, surrounded the entire circumference of the lesion marginally.

Upon removing the thin covering of the bleb there was an escape of transparent or colorless fluid just as is seen in blebs due to burns. The dark or red portion of the surface beneath the covering was found to be nothing more nor less than a bloody appearing surface such as one sees in a friction burn with the moist bloody area but no actual free hemorrhage. This explains the distinct demarcation between the colorless and the reddened areas. This state obtained from the incipiency of lesions to their disappearance.

My perplexity over this condition caused me to call in a colleague of many years experience in public health work, and in particular malaria, Dr. Wheeler Davis, Kennett, Missouri, for whose helpful suggestions I am indebted. The symptomatology in general suggested tertian malaria; however, Dr. Davis frankly stated that he had never seen similar skin manifestations in conjunction with malaria. He suggested a blood smear examination which we did with the resultant finding that the blood was teeming with malarial plasmodia, both within the cells and free in the plasma.

Accordingly treatment was begun with atabrine in the prescribed dosage for a child of this age. At the end of the first day all itching had stopped and there was a noticeable decrease in the frequency of stools. By the end of the second day's treatment there was a marked decrease in the prominence of the lesions, both as to amount of raised surface and as to depth of color.

By the end of five days of treatment all symptomatology had disappeared and there was as well a total absence of lesions. The lesions melted away with surprising rapidity leaving no trace of their former presence excepting small pink areas of smooth epidermal surface smaller than the original lesions.

The blood smear was taken on the day the child was first seen at which time the body temperature was 104°. In addition to the innumerable plasmodia there were numerous red cell fragments and considerable free hemoglobin in the plasma. Those red cells remaining intact showed a marked degree of poikilocytosis and also anisocytosis. They had a marked "washed-out" appearance. No nucleated red cells were seen. Hemoglobin by Talquist chart was 70 per cent.

Urinalysis revealed only a faint trace of albumin and numerous pus cells.

Incidentally the only other source of hemorrhage was a moderately severe epistaxis on two occasions during the first day of treatment; whether there was any connection between the treatment and the nosebleed can not be definitely stated. However, I rather doubt that there could be in view of there being no recurrences.

A few facts suggest themselves from recollection of the case. One is that the concomitant diarrhea in this case is a finding quite common to malaria in this particular section of the malaria belt. The significant point here is that this type of diarrhea does not relent until specific antimalarial therapy is instituted. Furthermore, the usual color changes observed in the absorption of subcutaneous free blood were not noted in the absorption of the material in these lesions. The color simply faded gradually until complete disappearance.

In December, 1933, about three months after I had treated this case, I was called to see a member of this same family. At that time I took particular notice of the child whose case is discussed here. To my surprise I found that on the child's face and neck in particular and in widely scattered areas on other parts of the body, there appeared very marked "pitting" such as is seen following smallpox. Owing to the smooth character of the pinkish marks noted upon completion of treatment of the case, the deep scars or "pits" observed on this occasion were the opposite of what I should have anticipated.

It is the hope of the writer that the review of this case has not been offered in vain. If other observers note similar skin manifestations concomitant with malaria the effort herein made will not have been fruitless.

SUMMARY

1. An unusual type of skin lesion has been observed in connection with a case of tertian malaria.

2. The skin lesions were a direct result of the malarial disease as was borne out by their immediate eradication under specific antimalarial treatment.

In all other respects the case is not unlike other cases of tertian malaria.

ANTITOXIN IN SCARLET FEVER

Of 5377 cases of scarlet fever studied, Pascal F. Lucchesi and James E. Bowman, Philadelphia (Journal A. M. A., Oct. 6, 1934), administered scarlet fever antitoxin in 3045 and not in 2332. In a comparison of the serum with the nonserum treated cases, a slight decrease in the number of febrile days in the mild and moderate groups was noted, and a substantial reduction in the severe group. The incidence of complications was definitely less in the serum treated cases in comparison with those not so treated. This effect was most prominent in the severe group. Serum reactions occurred in 36.3 per cent of the patients treated with antitoxin. The use of ephedrine compounds had a slight effect on the prevention of serum disease.

DIAPHRAGMATIC HERNIAS

A CLINICAL AND RADIOLOGIC STUDY OF TWENTY-FIVE CASES

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This study of the diaphragm, its hernias and certain associated lesions of the esophagus and stomach, is based on twenty-five patients. Ten of these were seen in our private practice the others collected through the courtesy and kindness of clinics and associates in Greater Kansas City. The diagnosis has been based largely on careful clinical and radiologic study although three have been controlled by operation and three by autopsy. The classification has been made confessedly rather dogmatically here since the ability to distinguish the various types of lesions clinically or even with the aid of the roentgen ray is at times impossible. With careful study and with the assistance of recognized radiologists, surgeons or pathologists, although opinions have differed somewhat, there seems to be evidence to support the following diagnoses: Three eventrations, four incompletely descended stomachs, one traction luxation of the "antestomach," three traumatic hernias, two para-esophageal hernias and twelve hiatal hernias of which five have been classified as cases representing prolapse of the antestomach and seven are thought to be gastric hernias through the esophageal hiatus. This study has impressed in a way the dictum that the "chief obstacle to the diagnosis of diaphragmatic hernia is neglect to look for it" (Moore and Kirklin) since in only two of these patients was a diaphragmatic hernia suspected before roentgen ray examination, and all of them had had additional or erroneous diagnoses leading at times to fruitless operations. In a high percentage of cases the diagnosis was made on accidental findings of routine examination by the roentgen ray, or by special technic of fluoroscopy and film. None of these patients so far as I know had the benefit of endoscopy or pneumoperitoneum to aid in more exact diagnosis.

Hernias of the diaphragm have been classified etiologically as congenital, acquired and traumatic. For example, Hedblum states that of 1003 cases reported since 1900, 29 per cent were classified as congenital, 36 per cent as chronically acquired and 34.9 per cent were thought to be due to trauma. Diaphragmatic hernias are also classified as to location into parasternal, paravertebral, hiatal or parahiatal and others. As is well known, most hernias are found on the left side of the diaphragm. We have found no report of hernia of the diaphragm through the aortal hiatus. According to Morison, Morgagni was the first to report in 1769 a case of esophageal hiatus hernia and Eppinger in 1911 popularized the term "para-esophageal hernia," which term has been loosely used since his time to include all hernias at or near the esophageal hiatus until Akerlund in 1926 clearly classified these types of hernias. It seems now widely conceded that the most frequent hernia of the diaphragm is located at or near the esophageal opening through the diaphragm (Harrington, Morrison, Akerlund, Ritvo, Barsony, Berg, and others). Roentgen ray and endoscopic studies have aided in diagnoses and far surpassed clinical diagnosis based on history and physical findings. Recently autopsy studies have thrown light on the incidence, the nature and the types of esophageal hiatus hernias.

To avoid confusion in the discussion of diaphragmatic hernias in general, and esophageal hiatus hernias in particular, this discussion will take up two well recognized clinical entities most difficult to differentiate clinically, endoscopically or radiologically from diaphragmatic hernias. I refer to (a) so-called "eventration" of the diaphragm, and (b) incompletely descended stomach.

EVENTRATION OF THE DIAPHRAGM

"Eventration is perhaps the most deceptive simulant of hernia," write Moore and Kirklin. Curiously enough, the very name itself is confusing as to its origin and its usage. Petit is repeatedly quoted as having described eventration of the diaphragm but Morison denies that Petit or his pupil Lesne ever used the term and states that Cruveilhier first used the term synonomously with the term hernia. Literally, the term eventration implies an opening in the diaphragm which is never the case in an uncomplicated eventration, so that the name is a misnomer and deserves banishment but like many another hoary term in medicine will probably live on and on. A preferable term is chronic relaxation of the diaphragm inasmuch as the whole side of the diaphragm is flaccid and highly domed as a rule. The diaphragm usually when studied has undergone chronic neuromuscular changes with paresis or paralysis of the musculature and subsequent replacement fibrosis. Eventration is often congenital, may be incompatible with infant

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life, or may be almost symptomless in adults. It presumably may be due to neuritis caused by intrathoracic pressure on the phrenic nerve or to toxic neuritis and must be differentiated from paralysis of the diaphragm caused by surgical attack on the phrenic nerve since these are becoming so familiar. Typical eventration has not, to my knowledge, been proved to have been caused by external violence or trauma though such is conceivable. Stein's case of typical eventration of congenital origin was seen twenty years ago by the writer during his hospital internship; a blue baby that had attacks of dysphagia and dyspnea which proved incompatible with life. Roentgen ray examination and autopsy proved that the thinned diaphragm reached up to the second intercostal space on the left. There was no opening in the diaphragm. A second patient (figure 1), in the sixth decade of life thought to have an eventration of the diaphragm had an enormous stomach and colon filled with fluid and air reaching to the apex of the left chest. He had much dyspnea and some dysphagia with palpitation but kept working up to the time of the routine examination by the railroad surgeons. (Drs. J. Hayden and Mantz.) The findings in the chest were demonstrated both clinically and radiographically. A third patient (studied with Dr. Galen Tice) also in the sixth decade, had no history of trauma but a left thoracically placed stomach and colon. The study was initiated by routine roentgen ray of the kidneys. Differentiation between eventration and hernia was very difficult to establish. LeWald has warned against errors in cases of accidents followed by evidence of thoracic stomach, especially in those patients whose diaphragms have not been proved to be normally placed previously. A point of value may be that statistically eventration is much more rare than hernia. Of the three patients diagnosed as suffering from eventration only one has been confirmed by autopsy—the infant. There is some question about the diagnosis in the others since, as has been repeatedly pointed out, thinning or paresis of the diaphragm may through weakness predispose to hernia, may follow hernia, or paralysis and hernia may coexist. Of the three cases one was congenital and two of long standing, possibly congenital. The two chronic cases in adults could sleep on the right side only with great difficulty. It has been repeatedly taught that paradoxical phrenic movements are found in eventration but Moore and Kirklin warn that diaphragmatic movements may be "normal, diminished, absent, or reversed, either in hernia or eventration." These authors emphasize with Morison, a "more practical" differential point: "The line of fluid in an eventration is always at the level of the esophageal opening, while in a hernia, when the stomach is in the thorax, the level of the fluid rises high in the chest according to the quantity of fluid present." If this be true one of these adults should be classed as having hernia. In the light of our present knowledge and technic operative interference, such as plication of the diaphragm in eventration, has not seemed advisable to us.

INCOMPLETELY DESCENDED STOMACH

The other condition which is not a hernia of the diaphragm in the strict sense of the term is a congenital anomaly, viz., the incompletely descended stomach. It is a congenital anomaly precisely as an incompletely descended testicle is. When found it is an evidence of failure of the stomach to descend through the thorax into the abdomen. The anomaly is always associated with a short esophagus. It may be explained embryologically somewhat as follows: In the human, the earliest evidence (anlage) of the primitive diaphragm is found in two millimeter length embryos and is located at the level of the mid cervical vertebrae where it picks up its nerve supply. Before the embryo has attained a length of 20 millimeters the diaphragm has descended almost to its position in adult life. Simultaneously with the descent of the diaphragm there is normally descent of the stomach and elongation of the esophagus and the phrenic nerves. The primitive diaphragm, on reaching the lower thoracic region, fuses with the dorsal mesentery of the foregut and with the pleuroperitoneal fold bilaterally, thus forming a complete diaphragm and separating for the first time the pleural and pericardial cavities above from the peritoneal cavity below. The anlages of the diaphragm, so different in their origins, may fuse imperfectly or not at all and may leave either unnatural weak points or openings or abnormally large natural openings which predispose to prenatal herniation of abdominal organs into the thorax, or having occurrence at birth when the pressure in the abdomen becomes positive and that in the chest becomes negative with the first efforts of inspiration or crying. The diaphragmatic crura forming the esophageal hiatus is loosely attached to the esophagus not by phrenic muscles being interwoven into the esophagus but by fibro-elastic tissue sufficiently strong to

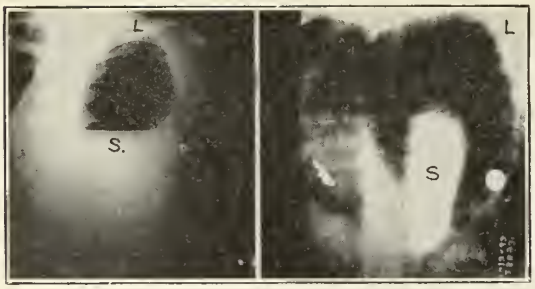

Fig. 1. Eventration of left diaphragm. a. "Thoracic Stomach" (Drs. Mantz and Hayden). Gastric, respiratory and cardiac troubles. Patient erect. Note stomach reaching apex; air above, fluid below. b. Patient supine. Large air sac; barium residue.

stimulate by its tug the elongation of the embryonic esophagus during the process of the descent of the diaphragm. If the attachment is not sufficiently strong to do this, or if there is hypoplasia of the esophagus, the stomach may not completely descend and the esophagogastric junction, the so-called anatomic cardia, may rest several centimeters above the diaphragm and the cardiac end, or much of the stomach may rest in the thorax. The esophageal hiatal ring, somewhat dilated in these cases as a rule by constricting the stomach, may produce a picture of an hour glass shaped stomach, a rather wide isthmus connecting the epiphrenic and subphrenic portions of the stomach. These pouches may be proved to be of gastric origin by roentgen ray evidence of gastric mucosal folds being in the epiphrenic pouch and in the dilated isthmus, or even better, by the esophagoscopist securing biopsy material for microscopic proof that the epiphrenic pouch is lined by gastric mucosa. Thus the endoscopist may show that the esophagus is short and that the constriction above the thoracic pouch may be in fact an undescended anatomic cardia, i. e.; the junction of esophageal and gastric mucosa. Case reports suggest that in incompletely descended stomach, the anatomic cardia may be found as high as the tracheal bifurcation.

In his classification of so-called "hiatal hernias," Akerlund seems to have erred, strictly speaking, by including these incompletely descended stomachs among the hiatal hernias. Sufficient excuse for this technical error may be found in the fact that positive differentiation between an incompletely descended stomach and the various types of esophageal hiatus hernias is, in the light of our present knowledge, difficult or at times impossible even with the combined skill of clinician, esophagoscopist and radiologist. The importance of such differentiation however when possible is emphasized by surgeons who may attempt vainly to replace an incompletely descended stomach held intrathoracically by its short esophagus. In a suspected or puzzling case, the clinical history of epiphrenic troubles since early infancy or childhood, or even repeated attacks at short or long intervals, may suggest the prenatal origin of the lesion. Of further importance is a history of dysphagia, epiphrenic or substernal distress following meals, food regurgitation, dyspnea after meals, or anginoid distress, especially after meals or on lying down—the so-called epiphrenic syndrome of von Bergman. There may be no symptom whatever to arouse one's suspicion of the incompletely descended stomach and the anomaly be found only at autopsy.

This developmental anomaly has been called "misplacement of the stomach" (Bright), "partial thoracic stomach" (Findley and Kelly), "thoracic stomach" (Bailey), "short esophagus type of diaphragmatic hernia" (Connor and Fineman), and "hernie diaphragmaticae verae oesophgeae" (Tonndorf). We suggest the term "incompletely descended stomach" for this anomaly inasmuch as this term implies (a) a recognition of the embryonic developmental anomaly which at once explains both the short esophagus and the abnormal location of the part, or all of the stomach that rests intratho-

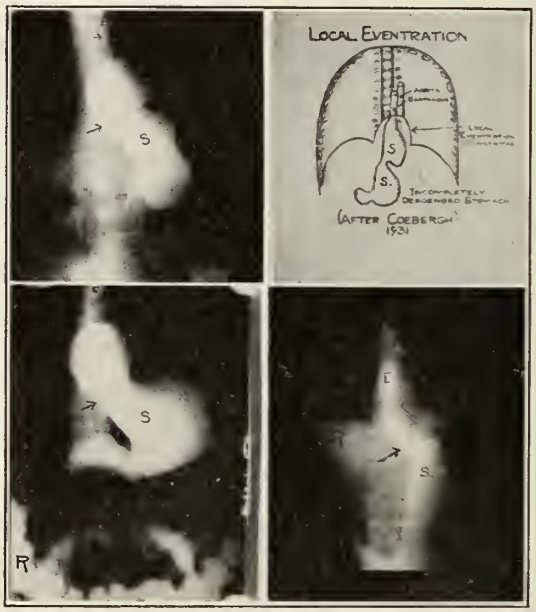

Fig. 2. Short esophagus, incompletely descended stomach (congenital). a. Gastric and cardiac distress all her life; note epiphrenal pouch and short esophagus. b. Local para-hiatal elevation of diaphragm (after Coebergh), congenitally short esophagus; stomach undescended but not a "thoracic stomach." Short esophagus (acquired). c. Hiatus hernia; short tortuous esophagus (Dr. Tice). d. "Traction luxation hernia of von Bergman" in a patient with scleroderma (Myers).

racically; (b) separates clearly this anomaly from "hernias" of the diaphragm, and (c) eliminates the inexact term of thoracic stomach and the like that in no way differentiates the anomaly from the thoracic stomachs found in the chest due to diaphragmatic hernias and eventrations. In favor of this term, "incompletely descended stomach," seems the possibility that it may include the enormous and the shriveled atrophic gastric pouches reported in the literature that have never descended below the diaphragm.

Until recently the incidence of incompletely descended stomach has been considered rare. More recently a number of cases have been reported: Eight cases from dissecting rooms (Bailey, Huffman, Hume, Schilling, Martin, and Rugby & Jones); at least five by autopsy (Bright, Bund, Plenck, Coebergh, Morison); twenty-four cases from the combined findings of endoscopy and roentgen ray (Findley and Kelly, Clerf and Mangus, Monkhouse and Montgomery); eight cases found by surgeons (Sauerbruch, Makkos, Plenck, Kakels and Banch, Harrington); and several cases found by radiologists (Carmen and Fineman, LeWald, Connor and Fineman, Friedenwald and Feldman, Arens and Bloom, Roberts, etc.). Hurst likewise (1934) speaks of "the familiar type of nontraumatic diaphragmatic hernia which results from the congenital shortening of the esophagus and of which I have seen thirteen cases in the last ten years." This incomplete survey of the literature lends weight to the suggestion that the incompletely descended stomach is probably not so rare as was formerly supposed.

A prerequisite for the diagnosis of an incompletely descended stomach is evidence by dissection, roentgen ray or endoscopy that the patient affected has a short esophagus and a gastric mucosal lined epiphrenic pouch. These evidences are essential but are not enough since clinically there should typically be a history of gastro-esophageal

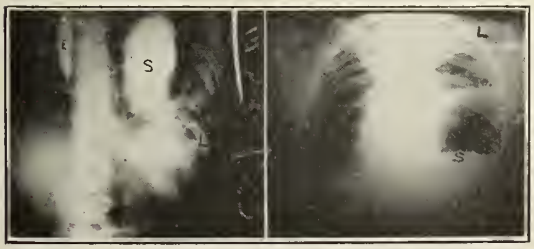

Fig. 3. Traumatic hernias: a. Ruptured diaphragm; automobile accident; many injuries; autopsy (Dr. C. Hunt). A case of so-called "evisceration." b. Traumatic hernia; automobile accident (Drs. R. Holbrook and E. H. Skinner). Operation confirmed (Dr. Harrington).

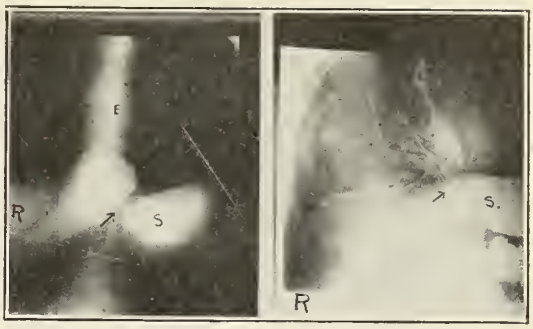

Fig. 4. Hiatus hernias: a. Dilated "antestomach" prolapsed through the hiatus; short esophagus. b. Hiatus hernia proper into right chest; note relation of short esophagus to stomach and gastric mucosa in relief in pouch.

symptoms reaching back to infancy or early childhood. Nor is this history absolutely essential since certain proved cases of incompletely descended stomach have no considerable symptoms up to the declining years of life. Suggestive as a short esophagus is of a stomach congenitally displaced above the diaphragm there seems to be cumulative evidence that a short esophagus may be found in other conditions. For example, there is a type of short esophagus, suggested by Akerlund but illustrated well by the case reported by Coebergh (figure 2 b), that seems to be a congenital anomaly though not associated with a "thoracic stomach." Such a local eventration or doming of the nonmuscular fibrosed portion of the esophageal hiatal region of the diaphragm seems to be present. In the case of Coebergh, the esophagus was short meeting the stomach several centimeters above the normal position of the diaphragm, or at the vault of the eventrated dome. As I understand the case report, the stomach is actually and technically beneath the diaphragm though it is a developmental anomaly with a short esophagus. This type of short esophagus seems to be very rare and would be difficult or impossible to differentiate during life either by endoscopy or by roentgen ray study. More important, however, is that, like other conditions of "incompletely descended stomach" with short esophagus, surgical attack would be contraindicated. Furthermore, long standing esophageal hiatus gastric hernias proper, of the acquired type, logically predispose to a gradual shortening of the esophagus brought about by the esophagus gradually shortening through the tone and contraction of its longitudinal muscles and by natural involutionary processes so that the distal end of the esophagus, though tortuous early (figure 2 c), may in time become shortened and empty into the

hiatus hernia several centimeters above the diaphragm. Identical shortening of the esophagus seems to occur in kyphoscoliosis with shortening of the thorax. Von Bergman has described a short esophagus causing "traction luxation" of the cardiac antrum of the stomach through the esophageal hiatus brought about at times physiologically through shortening action of the esophageal muscles, at times however, through sclerosis of the esophagus. We seem to have had one such patient who suffered for years from scleroderma of the hands and face, Raynaud's disease, with gradually increasing dysphagia due to epiphrenal stenosis and shortening of the esophagus. The cardiac end of the stomach seems to have been gradually drawn up above the diaphragm through the hiatus. This case has been reported by me. (Figure 2 d.)

In the light of the above data it seems that only tentative clinical or radiologic diagnosis of an incompletely descended stomach may be made, though it may be hoped that very skillful endoscopy may soon add more evidence for exact diagnosis since among all the diaphragmatic hernias endoscopy has here its most hopeful field of service in diagnosis. Two of my private patients give radiologic evidence of incompletely descended stomachs since they each had the short esophagus and the epiphrenal pouch which in the radiologic film gave evidence of being lined with gastric mucosa, if Berg's studies of relief of gastric mucosa be accepted as evidence of a gastric pouch. One gave a history of gastro-esophageal symptoms all her life (figure 2 a), the other had cardiac attacks at long intervals since childhood. Both were women above 60 years of age. Two other patients, seen with Dr. Tice at Bell Memorial Hospital, gave histories, one of gastric trouble "all her life," and the other had had trouble

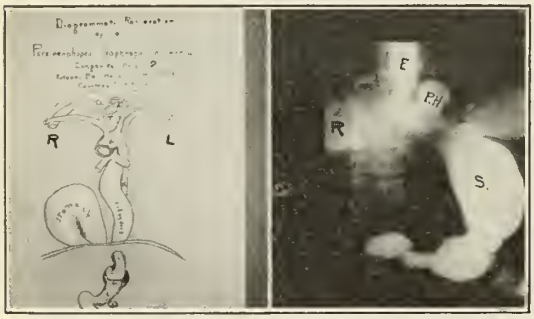

Fig. 5. Para-hiatal hernias: a. Reconstruction of roentgen ray and autopsy reports of a para-hiatal hernia into right chest (Drs. McDermott and Wahl). b. Small para-hiatal hernia (Drs. E. Lee Miller and Kuhlman).

for years. All four had orange to grapefruit sized epiphrenal pouches. Unfortunately, none of these patients have had surgical, autopsy or endoscopic control.

Traumatic Diaphragmatic Hernia.—Morison gives Guthrie credit for first observing that "wounds of the diaphragm never heal" unaided. One may well suspect diaphragmatic hernias in wounds and wrecks and compression injuries as well as falls from heights. The three patients in this study were injured in auto wrecks and were treated for broken bones and the lesions of the diaphragms were entirely overlooked in first aid in two of them. In the first patient a true diaphragmatic traumatic hernia was entirely overlooked by the writer many months after the accident, and was found elsewhere after another year of suffering from dyspnea, pain after meals and cardiac distress. He was operated on by Dr. E. Twyman and has remained completely relieved but still has on roentgen examination a persistent moderately high domed flaccid left diaphragm. The second patient (figure 3 a), seen with Dr. Claude Hunt at the Kansas City General Hospital, had been in an auto wreck, had numerous fractures and was in extreme shock. In the left chest the fluid and tympany were mistaken by the intern service for a hydropneumothorax which was needled by them only to prove the presence of gastric fluid coming from the chest. Here again the roentgen ray studies proved the nature of the lesion, a so-called "evisceration" with a tear through all layers of the diaphragm. Shock was so severe that operative attack was impossible. Autopsy proved that a tear had occurred in the back part of the left diaphragm, the rent allowing a fist to be passed freely through the diaphragm. Part of the stomach and colon were displaced thoracically. A third patient was one of Dr. Ralph Holbrook's roentgen rayed by Dr. E. H. Skinner. The patient had been proven to have a normally domed left diaphragm by fluoroscopy about a year before suffering from a severe automobile accident. He was found in shock with tachycardia and dyspnea. A chest radiogram, made with difficulty, showed the left diaphragm indistinctly and the stomach abnormally high in the left chest. The heart was somewhat displaced to the right. The question of eventration arose but operation by Dr. Harrington not only proved this patient to be suffering from a diaphragmatic hernia but also gave symptomatic relief. (Figure 3 b.)

Hernias of the Diaphragm Occurring at or Near the Esophageal Hiatus.—Eppinger grouped all these together and rather loosely classified them as "para-esophageal hernias" apparently on the ground that they all herniate into the mediastinum alongside of the esophagus. More recently Akerlund proposed a more exact classification and there has developed a new interest in this field and a new effort has been made by students through various methods of approach to lay a foundation for a new and satisfactory classification of these hiatal and para-hiatal hernias. The most frequent type of esophageal hiatus hernia seems to be merely a prolapse into the thorax of the dilated subdiaphragmatic esophagus, through the esophageal hiatus (figure 4 a), and the second type is like it except that part of the stomach also pouches through the hiatus (figure 4 b). A third type (traction luxation) is mentioned above in the study of the short esophagus (figure 2 d).

The first type deals with the subdiaphragmatic esophagus which though lined with esophageal mucosa as a rule (Neuman), is thought by some to have structure and function sufficiently distinct from the esophagus or stomach to justify its being considered an organ *per se*. It is, when normally functioning only the isthmus or "zwischen stück" between the stomach and esophagus; but when dilated, which is not rare especially in the aged, it is variously considered a part of the esophagus or a part of the stomach. When dilated it has been variously named "the subphrenic esophageal bulb" (Neuman); the cardiac antrum, or, the "vormagen" or antestomach of Luschka. This part of the esophagus has in the average adult a length of about 2 to 4 centimeters, and pathologic postmortem studies have shown that it is not rarely dilated to from 2 to 3 cm. but such dilatation is thought to be more marked during life. Luschka, in 1858 in a thorough study of the normal and abnormal anatomy of the chest, mentioned that this antestomach may be found in the thorax, and even at this early date referred to the work of Arnold, who had in 1838 reported three cases in "human ruminants" in which the hiatus was dilated and the dilated subphrenic esophagus had herniated through into the mediastinum. Renewed interest was aroused when radiologists in 1925 and 1926 began more intensive studies on the lower esophagus and it was found that small replaceable abnormal pouches above the esophageal hiatus were by no means rare. (Healy and Morrison, Carmen, Ritvo, Akerlund, Berg, Knothe, Schatzki, Barsony, etc.) Healy and Morrison thought these were "true hernias" and were frequent. Schatzki found them so often in patients above 60 years of age that he considered these small pouches almost physiological for old age. Sauerbruch, Chaoul and Adam argued they did not exist. Then pathologists laid a firm basis for explanation of the lesion. Anders and Bahrman in forty-eight unselected autopsies found this type of "hernia" in four, an incidence of 8.3 per cent. Neuman in a careful study of 100 autopsies, found such a prolapse in 12.5 per cent but emphasized that these "bulbs" did not have peritoneal coverings as a rule and therefore were, contrary to Morrison and Healy, not proved to be "true" diaphragmatic hernias. Thus the "hiatal hernias" of Akerlund, Ritvo, Berg and others are now understood to be of two types: The first is merely a prolapse of the cardiac antrum into the mediastinum with few dangers of complications or likelihood of symptoms, and the other being at times only a later stage when the stomach proper begins to wedge its way up through this dilated natural opening of the diaphragm in the form of a *hiatus hernia proper*. It is obvious that a small barium filled pouch may represent a prolapse of the antestomach, but an equally small pouch may likewise be a true hernia of the stomach. If the pouch is as large as a walnut or a small onion it may still be interpreted as probably a prolapsed antestomach, but if it is as large as a fist or larger presumptive evidence is that a gastric hernia alone, or an antestomach combined with a gastric hernia, has occurred. In this study the size of the pouch is considered of value in typing the nature of the presenting hiatal hernia. Another factor of importance depends on the course of the barium fluid and barium paste through the esophagus, and especially the length of the barium filled esophagus. If the esophagus is tortuous, this is presumptive evidence that the hernia is through the hiatus. If the esophagus is short the shortness of the esophagus may be acquired or congenital—an involutional shortening secondary to a long standing hiatal hernia. The symptoms may help, especially in hiatal hernias proper, such as dysphagia of varying duration and severity; discomfort and distress—substernal, epiphrenal, left upper quadrant, supraclavicular or precardial, radiating at times down the left arm anginal like. Symptoms are as a rule absent in prolapsed antestomach and may be wanting in gastric

hiatus hernias. The syndrome is as a rule due to the complications, as strangulations, hemorrhage, ulceration, cardiospasm, diverticula or extension of inflammation to the pleura or lung.

In our study of twelve of these conditions we have rather empirically placed five among those thought to be prolapse of the antestomach and seven as herniations of the stomach through the esophageal hiatus. I confess that the classification has been made on size somewhat, but rather more on the complications that have presented. None of the five patients thought to have prolapsed antestomach had serious symptoms or complications. Among the seven classed here as gastric hernias through the hiatus there was substernal soreness in seven, marked dysphagia in two, hematemesis in two, precordial distress in two, pleural or pulmonary complications in two. One died of a suppurative pleurisy (unfortunately necropsy was refused) but it was thought clinically and roentgenologically (Drs. Miller, Conover and DeWeese) that the patient had suffered from an ulcer in the hernia with extension or rupture into the pleura. One patient of mine had such a severe illness from a "pleuropneumonia" with subsequent chronic dysphagia and hematemesis on four occasions that she was thought to have a pressure ulcer complicating the hernia. One of the hernia patients had precordial distress on exertion and on eating. Electrocardiographs and radiographic studies explained the symptoms on the basis of the hiatal hernia. One patient (Drs. Milne and Lockwood) had had a trauma to the spine and another (Dr. Samuel Ayers) was found to have gallstones not apparently causing the syndrome of distress—epiphrenal, precordial and supraclavicular. Repair of the hernia (Dr. Harrington) is said to have given symptomatic relief.

Para-esophageal or para-hiatal hernias may exist; they are thought to be not rarely due to developmental weakness in the para-hiatal diaphragm. In the descent of the primitive diaphragm and the stomach a pleuroperitoneal pouch alongside of the esophagus is continuous with the omental bursa, formerly called the lesser peritoneal cavity. This pouch, or these pouches, blind thoracically, open abdominally, may normally close completely in early embryonic life, but in defective closure may be open on one or both sides of the esophagus so that a potential pleuroperitoneal lined sac into the mediastinum invites a herniation of the stomach or other viscera up into the thorax. This para-esophageal recess, Bund thinks may explain the tendency to diaphragmatic hernias in the para-hiatal region. No doubt others break through in this region due to congenital weakness or to trauma, and in such case do not have the congenital sac to rest in. The lesion may be impossible to distinguish clinically or even radiologically from the hiatal hernias mentioned above. One differentiating point is of importance if it can be proved, that is, if the esophagus reaches clear down to and courses beneath the diaphragm the swallowed barium flows first into and then out of the abdominal cavity into the epiphrenal pouch. If fluoroscopy can determine the length of the esophagus therefore to be normal para-hiatal rather than hiatal hernia may be suspected though not necessarily proved. In our study we have one autopsy of a para-esophageal hernia (figure 5 a), the opening in the diaphragm being between "the esophageal and aortal diaphragmatic openings." (Dr. H. R. Wahl.) The stomach lay largely in the right lower chest. Roentgen rays of another patient thought to have a para-hiatal hernia have been kindly loaned me by Dr. P. H. Owens and Dr. DeWeese, which show, when the patient is erect, besides an esophageal diverticulum, one stomach bubble in the part of the stomach below and one in the part above the diaphragm. Morison has suggested the value of this sign—a divided magenblase—as evidence at times of para-esophageal hernia. Another example is of a small para-hiatal hernia (figure 5 b) studied by Drs. E. Lee Miller and Kuhlman which may be confused easily with an esophageal or gastric diverticulum.

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SPECIAL ARTICLE

CANCER SURVEY OF MISSOURI

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NEW YORK, N. Y.

CANCER STATISTICS*

Since 1927 cancer has occupied second place as a cause of death in the registration area of the United States. The following table from the Federal Census shows the mortality in the death registration area of the United States for 1932 due to the leading causes of death.

Table 7. *Principal Causes of Death in United States Registration Area† for 1932*

Disease	Number Deaths	Death Rate
Heart disease	267,836	224.0
Cancer	122,339	102.2
Nephritis	104,488	87.3
Cerebral hemorrhage	104,636	87.5
Pneumonia	92,146	77.0
Tuberculosis	75,398	63.0

† Includes 96.3 per cent of total population.

As the general death rate throughout the country is decreasing due mainly to decreased infant mortality and deaths from communicable disease and as the number of deaths from cancer is increasing, the percentage of all deaths represented by cancer is increasing throughout the United States as shown by table 8.

Table 8. *Cancer Deaths in Registration Area and Percentage of All Deaths Represented by Cancer. 1920-1930*

Year	Number of Cancer Deaths	Percentage of all Deaths
1920	71,756	6.4
1921	75,113	7.4
1922	78,355	7.5
1923	81,505	7.3
1924	85,241	7.9
1925	88,623	8.0
1926	92,500	7.9
1927	95,103	8.6
1928	99,000	8.3
1929	111,562	8.0
1930	115,265	8.6

Heart disease and cancer are two diseases showing marked increase in deaths and death rates throughout the United States. While some other diseases, notably diabetes, are also showing a rapid increase in death

Survey made by the American Society for the Control of Cancer at the request of the Missouri State Medical Association upon recommendation of the Committee on Cancer.

This is the second installment of the Survey. It will be continued through several issues because of its length.

* The term "cancer" as used in this report includes all forms of malignancy.

Table 9. *Death Rates for Cancer and Other Leading Causes of Death per 100,000 Population. United States Registration Area*

Disease	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
Heart disease	175.3	178.1	185.5	199.1	195.7	208.3	210.9	213.5	213.0	224.0
Cancer	89.4	91.9	92.6	94.9	95.6	96.1	95.9	97.2	99.1	102.2
Nephritis	90.1	89.6	96.4	98.3	92.4	95.3	91.2	90.8	87.3	87.3
Cerebral hemorrhage and softening	90.5	92.7	84.4	86.3	84.0	87.2	86.1	84.9	86.7	87.5
Pneumonia	109.0	98.2	93.5	102.5	80.6	98.2	91.7	83.2	81.3	77.0
Tuberculosis	93.5	90.4	86.6	87.1	80.8	79.4	76.0	71.5	68.4	63.0

rate the total number of deaths from these diseases is but a fraction of those from heart disease and cancer. There is a slight increase in the death rate from nephritis and a marked decrease in the rates for pneumonia and tuberculosis. Table 9 shows these rates for the registration area of the United States for the period 1923 to 1932 inclusive.

In keeping with experience in other states and other countries the number of cancer deaths in Missouri has shown a steady and marked increase, much greater than the increase either in the population as a whole or in that portion of the population in the cancer age period, age 30 and above. In 1913 the cancer death rate in Missouri was 68.4 per 100,000. In 1932 it was 114.2 per 100,000. During the period 1910 to 1930 there was an increase in total population of 10 per cent and an increase of 7.4 per cent in the population 30 years of age and over. During the period 1913 to 1932 cancer deaths increased 83.6 per cent and the cancer death rate increased 67 per cent. It is thus seen that the cancer death rate increased more than six times as much as did the total population during this period and more than nine times as much as did that portion of the population aged 30 and over during this same period. In table 10 are shown these death rates in comparison with those of the United States registration area.

Table 10. *Total Deaths, Cancer Deaths, Death Rates and Percentages of All Deaths Represented by Cancer*

Year	Total Number Deaths	Cancer Deaths	Per Cent Cancer Deaths	Cancer Death Rate Missouri	Cancer Death Rate U. S. Registration Area
1913	42,130	2,279	5.4	68.4	79.0
1914	41,743	2,229	5.3	66.7	79.6
1915	40,863	2,170	5.3	64.7	81.4
1916	44,705	2,417	5.4	71.8	82.1
1917	45,564	2,420	5.3	71.7	82.0
1918	51,925	2,302	4.4	68.0	80.3
1919	39,282	2,375	6.0	70.0	80.5
1920	42,572	2,540	5.9	74.5	83.4
1921	36,210	2,674	7.3	78.2	86.0
1922	38,417	2,876	7.4	83.8	86.8
1923	41,853	3,133	7.5	91.0	89.4
1924	40,463	3,242	8.0	93.8	91.9
1925	41,332	3,343	8.1	96.0	92.6
1926	42,684	3,505	8.2	100.2	94.9
1927	40,853	3,703	9.1	105.5	95.6
1928	45,219	3,847	8.5	109.2	96.1
1929	44,262	3,935	8.8	109.3	96.0
1930	42,924	3,919	9.1	108.0	97.2
1931	43,999	4,022	9.1	110.1	99.1
1932	43,695	4,196	9.6	114.2	102.2

Rates noted in the preceding table are crude rates. Adjusted rates show but slight change and for purposes of this survey are not so significant as are the crude rates which show a more accurate picture of the number of cancer cases treated in the community. Although some of these cases may reside outside of Missouri, the professional and hospital facilities of the state are called upon for treatment and such cases properly form part of the load carried by the cancer treatment facilities of the state.

While the general death rate has declined during the period covered by the preceding table, a marked rise has taken place in both the number of deaths and the death rate from malignant disease.

These statistics would indicate an actual increase in the incidence of cancer independent of the increasing percentage of population now found in the cancer age group and of other factors which may influence the situation. The actual increase in cancer was discussed by the Bureau of the Census in its report "Mortality Rates 1910-1920." On page 80 of this report it is stated:

> The contention that cancer is not actually, but only apparently, increasing seems no longer tenable. Better diagnoses undoubtedly account for part of this increase shown, but not for all of it. Figures for England and Wales, compiled by Dr. T. H. C. Stevenson, and published by the Registrar-General's report for 1917, clearly established the actual increase in mortality from cancer of accessible sites and our own figures represented in 1920 Mortality Statistics confirmed Dr. Stevenson's findings. For example, for females in the registration states of 1900, the 1900 adjusted death rate from cancer of the breast per 100,000 population female was 9.2 and the 1920 adjusted rate was 16.9, an increase of 84 per cent. For a site so accessible, it is inconceivable that the difference in the above rates could possibly be due to difference in diagnostic power.

Figures for cancer of the buccal cavity, similar to those quoted above for cancer of the breast, show that in 1900 in the United States registration area the death rate for buccal cancer was 1.6. By 1910 this had increased to 3.1 and by 1920 to 3.5 near which figure it has since remained. Cancer of the buccal cavity always has been easily accessible and the increase noted cannot be explained entirely on the basis of improvement in diagnosis.

Table 11 showing cancer deaths in Missouri in 1931 by site of lesion (similar statistics for 1932 are not available) indicates the important place held by cancer in the digestive tract and peritoneum, 47.7 per cent of all cancer deaths in that year being reported from this region. This is approximately the same as figures for the United States registration area, 47.1 per cent for the year 1932.

Table 11. *Cancer Deaths by Site of Lesion.* Missouri, 1931*

Site	Cancer Deaths	Per Cent
All forms	4,022	100.0
Buccal cavity and pharynx	168	4.2
Stomach and liver	1,409	47.7
Intestines, rectum, and peritoneum	510	
Female genital organs	587	14.5
Breast	364	9.1
Skin	136	3.4
Other or unspecified	848	21.1

* This classification is the one in use previous to 1931.

Analysis of statistics of the twenty leading causes of death in Missouri in 1932 shows that cancer was exceeded only by heart disease. Cancer caused 12.7 per cent of the deaths due to the twenty leading causes of death and accounted for nearly six times as many deaths as did automobiles and 42.4 per cent more deaths than did tuberculosis. Cancer caused 9.6 per cent of deaths from all causes in Missouri in 1932. There was a death from cancer in Missouri every two hours during this year.

Table 13 lists the deaths from reportable diseases in Missouri during the five year period 1928 to 1932 inclusive. During this period the number of cancer deaths each year

Table 12. *Twenty Principal Causes of Death in Missouri. 1932*

Cause	Number Deaths
Diseases of heart	8,714
Cancer	4,196
Nephritis	4,045
Pneumonia (all kinds)	3,588
Cerebral hemorrhage	3,038
Tuberculosis (all kinds)	2,418
Influenza	1,497
Diabetes mellitus	876
Diarrhea and enteritis	740
Automobile accidents	686
Appendicitis and triphilitis	605
Homicides	408
Syphilis	304
Diphtheria	270
Whooping cough	235
Typhoid fever	203
Scarlet fever	119
Malaria	114
Dysentery	104
Puerperal septicemia	88

varied from 58 to 81.9 per cent of total deaths from the fourteen reportable diseases; and for the full five year period the number of cancer deaths was 68.9 per cent of all deaths in this list.

While in some instances the major activities of official health agencies may now lie in

Table 13. *Deaths From Reportable Diseases and Cancer in Missouri 1928-1932*

Disease	1928	1929	1930	1931	1932	Total Five Years
Diphtheria	197	192	162	251	270	1,072
Gonorrhea	32	39	30	34	25	160
Influenza	2,095	2,084	805	1,367	1,497	7,848
Malaria	151	153	125	146	114	689
Measles	128	106	101	269	31	635
Meningitis (epidemic)	143	275	205	93	34	750
Poliomyelitis	29	18	42	18	12	119
Scarlet fever	87	90	78	195	119	569
Smallpox	6	6	7	8	2	29
Syphilis	334	301	261	295	304	1,495
Tetanus	46	37	33	42	34	192
Tuberculosis (all forms)	2,907	2,702	2,544	2,625	2,418	13,196
Typhoid fever	245	180	264	255	203	1,147
Whooping cough	236	238	124	143	235	976
Total	6,636	6,421	4,781	5,741	5,298	28,877
CANCER	3,847	3,935	3,919	4,022	4,196	19,919
Per cent of total deaths represented by cancer	58.0	61.3	81.9	70.0	79.2	68.9

the fields of maternity, infancy and child hygiene, and venereal disease, they still have a profound responsibility toward prevention and control of communicable disease. In the majority of cases this responsibility was the reason for creation of official health agencies and other duties have been added as communicable diseases became better controlled. From table 13 it is noted that during the last five years deaths from cancer averaged well up with combined deaths from all communicable diseases. Occurrence of a comparatively few cases of any of these diseases at once sets in motion all the power and authority of health departments for their control. The help of state and national health organizations is enlisted and, if necessary, emergency funds are requested with which to hold the disease in check. An example of this was seen in St. Louis in 1933 when that city was visited by the encephalitis epidemic. The entire health resources of the nation were centered on this situation in which approximately 1200 cases of the disease were encountered with a mortality of about 200. For several years the occurrence of approximately 100 cancer deaths per month in St. Louis has aroused no interest among official health agencies of that city. No official cognizance is taken of the presence of cancer, one of the most lethal of all diseases, by any health department in Missouri.

This statement is not made in criticism of activities directed effectively toward the control of common epidemic diseases which would cause much suffering and some loss of life if they assumed epidemic proportions, but rather to emphasize the importance of cancer as a lethal disease and as a heavy

Table 14. *Population, Cancer Deaths, Number Licensed Physicians, and Ratio to Population. Missouri. 1930*

County	Population 1930	Per Cent Population 30 and Over	Number Cancer Deaths 1930	Number Living Cases**	Number Licensed Physicians	Ratio Population to Physicians
Adair	19,436	47.9	25	75	20	977
*Andrew	13,469	50.3	20	60	12	1122
*Atchison	13,421	44.1	16	48	14	960
Audrain	22,077	49.2	38	114	25	883
*Barry	22,803	41.7	17	51	20	1140
*Barton	14,560	47.4	13	39	16	910
*Bates	22,068	48.3	18	54	24	818
*Benton	11,708	45.3	10	30	10	1170
*Bollinger	12,269	39.9	6	18	8	1534
Boone	30,995	50.0	27	81	50	620
Buchanan	98,633	51.8	136	408	163	605
Butler	23,697	39.0	20	60	22	1077
*Caldwell	12,509	51.5	14	42	17	735
*Callaway	19,923	54.5	25	75	24	830
*Camden	9,142	39.0	4	12	7	1306
Cape Girardeau	33,203	43.1	22	66	44	755
*Carroll	19,940	48.9	22	66	24	830
*Carter	5,503	35.8	1	3	4	1375
*Cass	20,962	50.1	21	63	26	800
*Cedar	11,136	49.3	16	48	11	1013
*Chariton	19,588	48.2	14	42	21	933
*Christian	13,169	43.0	17	51	13	1013
*Clark	10,254	52.4	8	24	13	800
Clay	26,811	50.6	32	96	49	547
*Clinton	13,505	51.6	8	24	19	710
Cole	30,848	45.2	24	72	30	1028
Cooper	19,522	46.6	26	78	30	650
*Crawford	11,287	43.7	5	15	9	1254
*Dade	11,764	46.6	10	30	15	784
*Dallas	10,541	41.8	8	24	11	960
*Daviess	14,424	50.8	13	39	17	848
*DeKalb	10,270	51.5	10	30	11	934
*Dent	10,974	40.9	13	39	6	1829
*Douglas	13,959	38.2	3	9	4	3489
*Dunklin	35,799	34.1	19	57	25	1432
Franklin	30,519	45.9	30	90	32	953
*Gasconade	12,172	47.9	8	24	16	760
*Gentry	14,348	49.4	13	39	19	755
Green	82,929	46.7	103	309	126	658
*Grundy	16,135	52.4	16	48	21	770
*Harrison	17,233	47.9	22	66	24	718
*Henry	22,931	49.6	23	69	29	790
*Hickory	6,430	46.4	3	9	8	804
*Holt	12,720	47.8	17	51	12	1060
*Howard	13,490	51.4	9	27	12	1124
*Howell	19,672	42.3	19	57	24	820
*Iron	9,642	39.0	4	12	7	1377
Jackson	470,454	51.5	741	2223	1066	441
Jasper	73,810	47.9	104	312	98	753
*Jefferson	27,563	44.3	15	45	25	1102
*Johnson	22,413	51.5	27	81	29	773
*Knox	9,658	50.6	9	27	9	1073
*Laclede	16,320	42.0	12	36	18	700
*Lafayette	29,259	48.4	22	66	39	750
*Lawrence	23,774	46.1	20	60	21	1132
*Lewis	12,093	54.0	14	42	14	864
*Lincoln	13,929	51.6	17	51	21	663
*Linn	23,339	49.3	22	66	28	833
*Livingston	18,615	48.1	15	45	21	900
*McDonald	13,936	42.3	10	30	11	1267
*Macon	23,070	51.8	30	90	28	824
*Madison	9,418	40.9	6	18	8	1177
*Maries	8,368	40.5	7	21	4	2092
Marion	33,493	48.3	54	162	46	728
*Mercer	9,350	47.8	8	24	8	1170
*Miller	16,728	40.9	11	33	11	1520
*Mississippi	15,762	38.0	9	27	11	1435
*Moniteau	12,173	50.0	11	33	10	1217
*Monroe	13,466	54.6	15	45	11	1224
*Montgomery	13,011	51.5	19	57	13	1000
*Morgan	10,968	45.0	9	27	10	1097
*New Madrid	30,262	34.3	12	36	19	1592
*Newton	26,959	43.7	29	87	21	1284
Nodaway	26,371	48.2	32	96	39	676
*Oregon	12,220	38.0	6	18	7	1745
*Osage	12,462	41.3	10	30	12	1038
*Ozark	9,537	35.2	2	6	8	1192
*Pemiscot	37,284	35.2	5	15	28	1332
*Perry	13,707	40.1	9	27	11	1246
Pettis	34,664	47.0	37	117	41	845
*Phelps	15,308	44.0	11	33	15	1020
Pike	18,001	53.2	17	51	28	642
*Platte	13,819	48.5	6	18	14	987
*Polk	17,803	46.5	21	63	17	1047
*Pulaski	10,755	41.7	15	45	16	672
*Putnam	11,503	46.3	11	33	15	767
*Ralls	10,704	48.8	6	18	10	1070
Randolph	26,431	52.3	35	105	46	575

Table 14 (Conttinued)

County	Population 1930	Per Cent Population 30 and Over	Number Cancer Deaths 1930	Number Living Cases**	Number Licensed Physicians	Ratio Population to Physicians
*Ray	19,846	48.3	14	42	21	945
*Reynolds	8,923	34.5	3	9	5	1785
*Ripley	11,176	38.2	7	21	6	1862
St. Charles	24,354	48.3	25	75	29	840
*St. Clair	13,289	47.4	13	39	11	1208
St. Francois	35,832	40.7	24	72	35	1024
*Ste. Genevieve	10,097	43.2	8	24	8	1262
St. Louis City	821,960	50.4	1193	3479	2081	395
St. Louis	211,593	46.9	187	561	132	1680
*Saline	30,598	48.0	38	114	42	728
*Schuyler	6,951	49.9	16	48	8	870
*Scotland	8,853	52.9	18	54	9	984
*Scott	24,913	38.4	8	24	23	1083
*Shannon	10,894	36.3	3	9	3	3630
*Shelby	11,983	54.6	11	33	12	998
*Stoddard	27,452	37.4	10	30	20	1373
*Stone	11,614	37.2	5	15	5	2323
*Sullivan	15,212	46.8	10	30	20	760
*Taney	8,867	40.6	3	9	5	1773
*Texas	18,580	40.8	8	24	17	1093
*Vernon	25,031	51.8	33	99	31	808
*Warren	8,082	52.1	8	24	10	808
*Washington	14,450	38.0	6	18	5	2890
*Wayne	12,243	38.8	6	18	7	1749
*Webster	16,148	42.0	9	27	18	900
*Worth	6,535	47.6	8	24	9	726
*Wright	16,741	41.3	12	36	16	1470
	3,629,367	47.8	3919	11,757	5630	644

* Without hospitals of 25 beds or more.
** Estimated at three for each death.

drain on the social and economic life of the community. The effectiveness of the control of communicable diseases by the official health agencies of Missouri is attested by the small number of deaths from those diseases listed in table 13. The feeling of hopelessness about cancer which has so long pervaded all classes of society doubtless has had more to do with the neglect of this question by official health agencies than has the indifference or lack of interest of such organizations and their responsible officers.

The contribution that official health agencies can make toward the control of cancer rests on their ability to bring to the public known facts about the preventability and curability of the disease. The significance of conditions now recognized as precancerous and the importance of early signs and symptoms might well be stressed in publications of health departments and in official utterances by their responsible officers.

Measures so far developed for controlling cancer equal in no degree those found effective against the common communicable diseases. The unknown etiology of cancer furnishes the major reason for this lack of control although enough is now known about the hopefulness of early and adequate treatment to make it unnecessary to wait for more specific information as to etiology before making an effective contribution to a control program. The cancer problem has not yet been dramatized sufficiently to bring it to the attention of the community and to arouse much sentimental appeal in the public mind. Nevertheless, there should be a strong public appeal in behalf of cancer sufferers regardless of their age in addition to the weighty economic problems involved. Cancer of the bone is found primarily in children and usually of a painful and fatal type, at best resulting in amputation with permanent disability. In adults cancer too often strikes at the most productive period of life when physical and mental efficiency are at their peak. No age is immune and the suffering from this disease, especially in its later stages, is so appalling that practical measures for its control should merit the sympathetic cooperation of all classes of society.

County Distribution.—In the last analysis prevention and control of cancer devolve in large measure upon communities in which cancer patients live. The medical profession should have at its command the latest and most definite information on community aspects of the problem in order to formulate its program of cancer activities. Should the time come when state and local governments take an active part in this work it would be necessary to have available to communities fairly definite information on the problem.

Table 14 shows some important facts about cancer in Missouri based on the county as a unit. The figures throughout this table are

on the 1930 basis later figures not being available. The percentage of population 30 years of age and over, number of cancer deaths, number of licensed physicians and ratio of population to physicians have been calculated for each county. The number of living cancer cases has been estimated at three for each death, and as the number of deaths approximates the number of licensed physicians in the state outside Kansas City and St. Louis this calculation gives an average of three cancer patients per physician. It is interesting to note that in several counties the number of cancer deaths and physicians is the same, and in other counties there is a difference of but one or two between them.

Hospital Cancer Cases.—Forty-nine hospitals in Missouri with a bed capacity of 7867 are reported on in this survey. Of this number twenty-nine were of 100 beds or more capacity. They were distributed among twenty-two counties and all but four were visited during the survey. Those not visited were Bonne Terre, Bonne Terre; Grim-Smith, Kirksville; Pike County, Louisiana, and Central, St. Louis. These hospitals were not visited because of their small bed capacity and the small number of cancer patients reported.

Three other hospitals did not submit the requested information and were not visited. These are Tiernon, Pine Lawn; People's, St. Louis, and St. Francis, Washington.

Seven hospitals were visited in the course of the field work but did not submit the information requested. Because of this it has been impossible to consider them further. These hospitals are Southeast Missouri, Cape Girardeau; Excelsior Springs Sanitarium and Hospital, Excelsior Springs; Vineyard Park, Kansas City; Wheatley Provident, Kansas City; Poplar Bluff, Poplar Bluff; Josephine, St. Louis, and St. Mary's, St. Louis.

The number of adult patients admitted in 1932 to the forty-nine hospitals surveyed was 126,624 of which 3009, or 2.4 per cent, were for cancer. The largest percentage of cancer patients in any hospital was 78 at Barnard Free Skin and Cancer Hospital, St. Louis. The smallest percentage was .25. As Barnard Hospital is a special cancer hospital the percentage of patients admitted with cancer would naturally be very high compared to the experience of the average general hospital. The general hospital with the highest percentage of cancer admissions was Research Hospital, Kansas City, with 6.5 per cent, the next highest being Barnes Hospital, St. Louis, with 6.2 per cent.

In the survey of St. Louis based on the 1930 experience of the hospitals it was found that 3.2 per cent of all hospital admissions were for cancer. Excluding Barnard Hospital from this tabulation, the percentage of cancer admissions to the general hospitals of that city was 2.4. In the present survey cancer admissions to all St. Louis hospitals had been increased to 3.6 per cent, but again excluding Barnard Hospital it was found to be 2.8 per cent, an increase of .4 per cent in two years.

It is seen that in the average general hospital in Missouri the number of cancer patients at any one time forms but a small percentage of total adult admissions. The small number of cancer patients, however, does not indicate their relative importance in the work of the hospital for the reason that, potentially at least, treatment received by these patients determines to a large extent the death rate from this disease. The statement just made can and will become an actuality when cancer patients are seen sufficiently early for adequate treatment to play a large part in their recovery and future health.

(To be continued in the December issue.)

LABORATORY DIAGNOSIS OF AMEBIASIS

Thomas B. Magath, Rochester, Minn. (Journal A. M. A., Oct. 20, 1934), contends that it is evident that the laboratory diagnosis of amebiasis requires special knowledge and skill and should not be attempted except by those adequately trained and with a large measure of experience. The problems involved are quite comparable to those involving diagnosis of tissue. The diagnosis of amebiasis should be made only by those specially qualified. The direct smear method is adequate in the hands of those properly trained in almost all cases but, if doubt exists, one should resort to fixed and stained preparations. Whether one uses formed stools or those resulting from catharsis will depend on the individual problem. Whichever is used, the limitations of the particular method must be clearly recognized. Culture methods should be used in laboratories qualified to identify amebas, but, for the usual routine, cultures are not necessary, provided the examiner thoroughly knows how to make proper direct examinations. The cultural characteristics of various amebas growing in these cultures have yet to be clearly described, and a series of animal experiments to determine the types in a large series is greatly needed. Until the complement fixation method is simplified, it is not suitable for routine test. Of infestations with Endamoeba histolytica, 75 per cent can be found by examining a single stool following catharsis with magnesium sulphate, whereas only a third of the infestations will be found by examining a single formed stool. It will require eight to ten formed stools to establish the same number of infestations as three stools following catharsis.

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NOVEMBER, 1934

EDITORIALS

PRESIDENT WALTER WILLIAMS

Medical education will lose the official support of an ardent friend in December when Walter Williams relinquishes his office as president of the University of Missouri to a younger man and returns to the field of journalism. His crowded life has not prevented this noted journalist and educator from giving thought to the profession of medicine, nor did the long hours spent in an editor's chair and a self-made man's study interfere with his helping to elevate medicine to the high plane it enjoys today.

Missouri doctors, familiar with Walter Williams' activities, will recall that, while chairman of the Board of Curators of the University of Missouri more than a quarter of a century ago, he was instrumental in the bringing about of a first-class complete course in medicine in the University. His interest in the school of medicine did not wane after his acceptance of the deanship of the first school of journalism in the world although he was compelled to devote most of his time to his own profession. Medical education at the University was limited in scope in the years that followed. Upon his ascendancy to the presidency Dr. Williams found only a two-year course in medicine remained. One of his first tasks was to reinstate the four-year course in the school of medicine, which he undertook in the face of the depression. He succeeded in reestablishing the four-year course and had appointed a faculty adequate to carry the additional burden of clinical and classroom instruction only to be faced with a serious lack of funds. Reluctantly he permitted the third and fourth year courses to be removed until a time when funds would be sufficient to restore the full curriculum.

A man's vocabulary is a true index of his thoughts and desires; his associates indicative of his character and interests. Sprinkled in the common-day language of Walter Williams can be found allusions to medical science and practice. Among his friends and counselors will be found physicians, surgeons, teachers of medicine. He has placed medical men on Journalism Week programs and appointed to the recently formed advisory council of the University outstanding physicians of the United States.

In his efforts to elevate journalism to a profession Dr. Williams repeatedly cited standards the observance of which gave medicine a highly respected place in society. As early as 1905 when he was devoting much time and thought to introducing formal journalistic instruction into the college curricula, he pointed to medicine as an excellent example of a calling raised to higher standards of service through improved facilities for formal study and research. In the first issue of the University *Missourian,* the laboratory newspaper born with the school, Dr. Williams wrote: "The department is coordinate with other departments of the University, such as medicine."

In an address before the Missouri Press Association a few months before the opening of the school, he said: "The school is equal in rank with the school of medicine. . . . The new departure adds the laboratory to the lecture method, the clinic supplementing the classroom."

Before a meeting of the American Society of Newspaper Editors years later, in an attempt to answer the question, "Are the schools of journalism getting anywhere?" Dr. Williams said: "The oldest school of journalism is only sixteen years old. The methods are experimental. How long did it take courses in medicine to attain their present value? Even yet has the last word been said as to the educational methods in . . . schools of medicine?"

Upon reading the "The Journalist's Creed," the crystallized idealism of this journalist of the world who has consecrated his life to the fourth estate, one is tempted to set himself up as a prophet, despite the knowledge that a man cannot be accurately measured by his contemporaries. The famous canons of journalism laid down by this great teacher and journalist may be safely compared with the "Oath of Hippocrates" without fear of objection from any but the most unappreciative historian of the distant future.

Not unlike that celebrated Greek physician

who more than four centuries before Christ prepared a code of ethics for physicians which reads as if it has been written today, Walter Williams twenty-four short years ago put his heart into "The Journalist's Creed," a document now known the world over and translated into some thirty foreign languages. Except for the subject of the creed, Hippocrates might have written the beginning, viz.:

"I believe in the profession of journalism. I believe that the public journal is a public trust; that all connected with it are, to the full measure of their responsibility, trustees for the public; that acceptance of lesser service than the public service is betrayal of this trust."

The Williams' creed closes with the following:

"I believe that the journalism which succeeds best—and best deserves success—fears God and honors man; is stoutly independent, unmoved by pride of opinion or greed of power, constructive, tolerant, but never careless, self-controlled, patient, always respectful of its readers but always unafraid; is quickly indignant at injustice; is unswayed by the appeal of privilege or the clamor of the mob; seeks to give every man a chance, and, as far as law and honest wage and recognition of human brotherhood can make it so, an equal chance; is profoundly patriotic while sincerely promoting international good will and cementing world comradeship; is a journalism of humanity, of and for today's world."

MISSOURI ACADEMY OF SCIENCE

The Missouri Academy of Science is composed of about 400 persons interested in the advancement of all branches of science to "increase the diffusion of scientific knowledge and the scientific spirit." The objects of the academy are to foster public interest in scientific matters, to encourage local scientific organizations, to promote acquaintance and harmonious relationships between scientists in Missouri, to supply a medium for the publication of the results of original work and to concern itself with legislation on scientific matters.

All the sciences are represented and practically every institution of higher learning in the state is represented in the membership roll.

Sections on the following sciences will be created at the December meeting or later on by the executive committee: Mathematics, physics, chemistry, astronomy, geology and geography, zoology, botany, anthropology, psychology, sociology, economics, history, philology, engineering, medicine, philosophy and political science.

This movement should hold special interest for members of the State Medical Association to encourage a good section on medicine.

Dr. Dudley S. Conley, Columbia, dean of the Medical School of the University of Missouri, is chairman of the medical section. He is anxious to have a good representation of physicians to become charter members at the December meeting which will be held in Columbia on December 6. Application blanks will be sent to every county society secretary and others on request. The initial dues are $1.50 and an entrance fee is $1.00. Charter members will be exempt from the entrance fee.

The officers of the academy are: President, Dean A. S. Langsdorf, School of Engineering and Architecture, Washington University, St. Louis; vice president, Dr. F. H'Doubler, Springfield; secretary, Prof. R. T. Dufford, Department of Physics, University of Missouri, Columbia; treasurer, Prof. R. A. Wails, Department of Mathematics, Park College, Parkville.

SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association will hold its twenty-eighth annual meeting in San Antonio, Texas, November 13, 14, 15 and 16. The first two days will be devoted to general clinical sessions, meetings of some of the smaller sections and meetings of the associations convening conjointly.

One of the general sessions of the first day will be on medicine and surgery in their subdivisions and will include short presentations of methods and procedures which have been helpful to the clinicians making the presentations. The last two days will be taken up entirely with section meetings and sessions of organizations meeting conjointly, alternating forenoons and afternoons. A group of round table luncheons will be held on Thursday.

Tuesday evening will be "President's Night" featuring the addresses of welcome, the response and the address of the president, Dr. Hugh Leslie Moore, Dallas, Texas. The president's reception and ball will follow the scientific session.

Alumni dinners will be held on Wednesday evening and on Thursday evening there

will be a special entertainment. There will be golf and trap shooting tournaments and entertainment for the women.

There are sixteen scientific sections of the Southern Medical Association and eight societies are meeting conjointly with the 1934 session. These associations are the American Society of Tropical Medicine, the American Public Health Association (Southern branch), the National Malaria Committee, the Society for Experimental Biology and Medicine(Southern section), the Southern Association of Anesthetists, the Texas Pediatric Society, the Texas Dermatological Society and the Mississippi Valley Dermatological Society, and the Texas Ophthalmological and Otolaryngological Society.

The Gunter Hotel will be the general hotel headquarters for the Southern Medical Association and other organizations will have their own hotel headquarters.

Following the San Antonio session the association will conduct an official all-expense trip to Mexico. The group will go directly from San Antonio to Mexico City and visit other points from there.

The Missouri members have prepared an urgent invitation for the association to meet in St. Louis in 1935.

NEWS NOTES

Dr. C. H. Dixon, Moberly, has been appointed Councilor of the 10th District to fill the unexpired term of Dr. Don A. Barnhart, Huntsville, who died September 19.

Dr. Jonas C. Kopelowitz, St. Louis, has reopened his office in the Missouri Building, St. Louis, after a year's absence caused by a prolonged illness from undulant fever.

Dr. P. E. Kubitschek, St. Louis, addressed the St. Louis Neuropsychiatric Society at a meeting October 22 on "Reading Disabilities; Etiology, Complications and Treatment."

Drs. Dan G. Stine and M. Pinson Neal, Columbia, were guests of the Adams County (Illinois) Medical Society at Quincy on October 8. Dr. Stine spoke on "The Value of the Leukocyte Count in Pulmonary Tuberculosis" and Dr. Neal discussed "The Leukocyte Blood Picture in Acute Infections."

Dr. Walter Baumgarten, St. Louis, has been appointed a member of the Committee on Publication of the State Association by the President, Dr. C. T. Ryland, Lexington. Dr. Baumgarten will succeed Dr. M. A. Bliss, St. Louis, who died September 4.

Dr. J. Curtis Lyter, St. Louis, was a guest at the annual meeting of the Macoupin County (Illinois) Medical Society at Carlinville, Illinois, September 25. Dr. Lyter delivered an address on "The Treatment of Certain Types of Angina Pectoris of Effort With the Cardiac Hormones."

Dr. J. F. Bredeck, St. Louis, was elected president-elect of the Missouri Public Health Association at the annual meeting of the association in St. Louis, September 20 and 21. Dr. J. T. Brennan, Independence, was installed as president. The 1935 session will be held in Kansas City.

The Radiological Society of North America will hold its next annual meeting at Memphis, Tennessee, December 3 to 7 with headquarters at the Peabody Hotel. The medical profession is cordially invited to attend. Further information may be obtained by addressing the secretary-treasurer, Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, New York.

Drs. Daniel L. Sexton and Roland M. Klemme, St. Louis, were guests of the District Medical Society of Central Illinois at Effingham, Illinois, September 25 at the society's sixtieth semiannual meeting. Dr. Sexton spoke on "The Role of the Endocrines in General Practice" and Dr. Klemme discussed "The Diagnosis and Treatment of Brain Tumors."

The Missouri Social Hygiene Association celebrated its twentieth anniversary by holding a social hygiene institute October 26 in the auditorium of the St. Louis Medical Society building. The purpose of the institute was to acquaint the public with new scientific discoveries, new applications of psychology and new theories of education as they affect sex and social relationships. Dr. Paul J. Zentay, St. Louis, president of the association, was chairman of the sessions. Dr. Harriet S. Cory, St. Louis, is executive secretary. Guests who delivered addresses

were Dr. Frankwood E. Williams, New York; Dr. Kimball Young, Madison, Wisconsin, and Dr. Rachelle S. Yarros, Chicago.

The fourteenth annual meeting of the Southwestern Branch of the American Urological Association convened in St. Louis, October 22, 23 and 24. The program was dedicated to Dr. Bransford Lewis, St. Louis, in honor of his fiftieth year in the practice of urology. Addresses were delivered before sessions at the Coronado Hotel and clinics were conducted at hospitals. Missouri members appearing on the program were Drs. Neil S. Moore, S. M. Tapper, Grayson Carroll, D. K. Rose, John R. Caulk, George Ives, C. E. Burford and Bransford Lewis, St. Louis; C. K. Smith and Ernest G. Mark, Kansas City, and Charles Greenberg, St. Joseph. Dr. Grayson Carroll, St. Louis, presided at the St. Louis session. Dr. H. Fay Jones, Little Rock, Arkansas, will preside at the 1935 session.

The Association of Assistant Physicians of State Hospitals of Missouri convened in conjunction with a regional conference of the Missouri Tuberculosis Association at Mount Vernon, October 12. A morning session and a dinner meeting were held. Dr. Ralf Hanks, Fulton, president of the association, presided. Dr. W. J. Bryan, Mount Vernon, superintendent of the Mount Vernon Sanatorium, welcomed the assembly at the morning session and Dr. R. H. Runde, Mount Vernon, spoke on "Artificial Pneumothorax." At the dinner meeting Dr. George H. Hoxie, Kansas City, spoke on "Care of the Infectious Child" and Dr. Evarts A. Graham, St. Louis, discussed "The Surgical Treatment of Pulmonary Tuberculosis." The scientific program in the evening was sponsored by the Lawrence-Stone County Medical Society. At an afternoon session of the Missouri Tuberculosis Association Dr. Jesse E. Douglass, Webb City, spoke on "Tuberculosis Sanatorium Outpatient Service."

The St. Louis Health Department will hold its third annual series of clinical conferences on tuberculosis on Mondays and Thursdays between 10 and 12 a. m. from November 5 to December 6. These conferences are designed to interest and aid the general practitioner and while registration is required no fee is charged. The preceding two conferences have been well attended. This fall each session will again be presented upon two different days for the convenience of physicians and to keep the group at each session from being too large. The first session will be held at the Isolation Hospital on November 5 from 10 to 12 o'clock and will be repeated on November 22. The first hour will be devoted to short discussions of pertinent questions and a clinic on physical examinations will be conducted the second hour. On November 26 a symposium on laboratory diagnosis will be presented at the Isolation Hospital from 10 to 12 o'clock. A symposium on diagnosis and treatment will be held on November 15 and December 3 at the Robert Koch Hospital. The last session will be held November 19 and December 6 at the Isolation Hospital. Discussions and demonstrations of various phases of diagnosis and treatment will be presented. Dr. H. I. Spector, Assistant Health Commissioner and Tuberculosis Controller of St. Louis, is in charge of the conferences.

Eli Lilly and Company, Indianapolis, Indiana, manufacturers of pharmaceutical products, held a formal opening of their new research laboratories on October 11 before a gathering of more than a thousand persons, most of whom were physicians, investigators and research workers. The program included an informal luncheon at noon at the Lilly laboratories, a dedication ceremony at 2 o'clock, an inspection of the new laboratory unit at 4 o'clock and a formal dinner at the Indianapolis Athletic Club in the evening. The laboratory was open for inspection each day from October 8 to October 12.

Mr. Eli Lilly, president of the company, presided at the dedicatory ceremony. Mr. J. K. Lilly, chairman of the board of directors, spoke on "Research in Manufacturing Pharmacy." Dr. Irving Langmuir, director of research for the General Electric Company, discussed "The Unpredictable Results of Research," and "The Early History of Insulin" was presented by Sir Frederick Banting, Toronto, Canada. Sir Frederick gave an account of the early experiments conducted by himself and colleagues which first demonstrated the existence of insulin and expressed his appreciation of the cooperation and industry of the Lilly laboratories which developed a practical procedure for the large scale production of insulin. Sir Henry Dale, London, director of the National Institute for Medical Research, London, and secretary of the Royal Society, closed the afternoon program with an ad-

dress on "Chemical Ideas in Medicine and Biology." Speakers at the banquet, at which Mr. J. K. Lilly was toastmaster, were Sir Henry Dale, London; Dr. Elliott P. Joslin and Dr. George R. Minot, Boston; Dr. Frank R. Lillie, Chicago; Dr. George H. Whipple, Rochester, New York; Dr. Carl Voegtlin, Washington, D. C., and Dr. G. H. A. Clowes, Indianapolis, head of the Lilly research laboratories.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories
- Bismuth Subsalicylate with Butyn—D. R. L.
- Ampoules Procaine Hydrochloride Solution 10 per cent, 2 cc.
- Ampoules Procaine Hydrochloride Solution 2 per cent, 5 cc.
- Procaine-Epinephrine Solution, 100 cc. bottle
- Procaine Hydrochloride Hypodermic Tablets ⅓ grain
- Procaine Hydrochloride Hypodermic Tablets 3 grains
- Ophthalmic Ointment Butyn 2 per cent and Metaphen 1:10,000

Cheplin Biological Laboratories, Inc.
- Cheplin's Ampules Dextrose (d-Glucose) U. S. P., 50 per cent, 50 cc. (buffered)
- Cheplin's Ampules Dextrose (d-Glucose) U. S. P., 50 per cent, 50 cc. (unbuffered)
- Cheplin's Ampules Dextrose (d-Glucose) U. S. P., 10 Gm., 20 cc. (buffered)
- Cheplin's Ampules Dextrose (d-Glucose) U. S. P., 50 Gm., 100 cc. (buffered)
- Cheplin's Ampules Dextrose (d-Glucose) U. S. P., 50 Gm., 100 cc. (unbuffered)

Cutter Laboratory
- Solution Dextrose—U. S. P., 25 Gm., 50 cc. in bottles
- Solution Dextrose—U. S. P., 50 Gm., 100 cc. in bottles
- Solution Dextrose—U. S. P., 5 per cent in Saftiflask containers
- Solution Dextrose—U. S. P., 10 per cent in Saftiflask containers

Don Baxter Intravenous Products Corporation
- Dextrose Solutions 2½ per cent, 5 per cent, 7½ per cent, 10 per cent and 25 per cent in half-size Vacoliter containers
- Dextrose 2½ per cent, 5 per cent, 7½ per cent and 10 per cent in Physiological Sodium Chloride Solution in half-size Vacoliter containers

Eli Lilly & Company
- Diphtheria Toxoid, Alum Precipitated (refined)—Lilly

Frederick Stearns & Co
- Neo-Synephrin Hydrochloride Emulsion (Aromatic)
- Procaine-Neo-Synephrin Hydrochloride Hypodermic Tablets

National Drug Company
- Rabies Vaccine (Human) Chloroform Killed
- Refined Tetanus Toxoid (Alum Precipitated)

Parke, Davis & Co.
- Normal Horse Serum—P. D. & Co., one 1 cc. rubber stoppered vial packages
- Rabies Vaccine (Cumming), seven vial packages
- Scarlet Fever Streptococcus Toxin for the Skin Test—P. D. & Co., one 10 cc. vial package
- Capsule Ortal Sodium ¾ grain (0.05 Gm.)

Reinschild Chemical Co
- Agar-Agar Shreds

E. R. Squibb & Sons
- Refined Diphtheria Toxoid Alum Precipitated—Squibb, ten 0.5 cc. vial packages

Ucoline Products Co.
- Ucoline Cod Liver Oil Concentrate
- Ucoline Cod Liver Oil Concentrate Tablets

Winthrop Chemical Co., Inc.
- Duotal Tablets, 5 grains

The following products have been accepted for inclusion in the list of articles and brands accepted by the Council but not described in N. N. R. (New and Nonofficial Remedies, 1934, p. 439):

Don Baxter Intravenous Products Corp.
- Physiological Sodium Chloride Solution in half-size Vacoliter containers

Merck & Co., Inc.
- Amidopyrine—Merck

OBITUARY

EUGENE HARTLEY, M.D.

Dr. Eugene Hartley, St. Louis, Missouri, a graduate of St. Louis University School of Medicine, 1918, died June 6, 1934.

Dr. Hartley was born in Nebo, Missouri, son of Dr. and Mrs. Lorenzo Dow Hartley.

After completing his medical work at St. Louis University he was associated with Dr. Bransford Lewis, a specialist in urology. Several years later Dr. Hartley opened an office of his own in the Arcade Building, specializing in urology.

Dr. Hartley was connected with the Christian Hospital and also Desloge. He was a member of the St. Louis, State and American medical societies.

In 1921 Dr. Hartley was married to Miss Ruth Wood. Mrs. Hartley survives.

Dr. Hartley was of a retiring disposition but had many loyal friends. He spent most of his afternoons playing golf and both his professional and social friends were very close to him. He was always charitable toward his fellowmen and willing to do his part for those less fortunate.

His untimely death is mourned by the entire Medical Society, his friends and patients.—R. E. W. in the Weekly *Bulletin* of the St. Louis Medical Society.

THEODORE L. CARRIERE, M.D.

From the day of his birth, December 30, 1871, to the date of his sudden death, June 22, 1934, Dr. Theodore L. Carriere lived in the City of St. Louis. He obtained a preliminary education in the local grade and high schools and then decided to study medicine.

His father was a Swedenborgian clergyman and also a practitioner of the cult of Samuel Hahnemann. It was therefore quite natural that the young man attended the Homeopathic Medical College of Missouri from which he graduated in 1895. How long, if ever, he adhered exclusively to the principles of homeopathy is uncertain, but, he undoubtedly lived up to the teachings of the regular school of medical practice for many years.

For a generation, or even longer, Dr. Carriere was very active in Republican politics. At one time he held the position of assistant coroner and functioned as autopsy physician on the coroner's staff during the official tenure of a number of incumbents of the office. When the mutable complexion of Janus-faced party politics eliminated him from a service that had become dear to his heart, the innate serious nature of the man produced a mental attitude which seemed to be drifting toward a state of melancholy. However, he soon threw off that spirit of sadness and applied himself to his private medical practice with greater diligence.

Theodore Carriere was extremely conscientious and always greatly concerned about the welfare of his patients. This tendency led him to seek frequent consultations with competent specialists. His regular patrons were also his dear friends. Furthermore, he had a quiet and dignified demeanor in the sickroom and ministered so carefully to the needs of his patients that some of them will experience difficulty in finding another doctor to replace Dr. Carriere in their estimation.

"A friend may well be reckoned the masterpiece of Nature."

We sympathize profoundly with the bereaved widow of our departed colleague.—R. E. S. in the Weekly *Bulletin* of the St. Louis Medical Society.

HERBERT A. RHOADES, M.D.

Dr. Herbert A. Rhoades, Foster, a graduate of the Kansas City Medical College, 1897, died at Mercy Hospital in Ft. Scott, Kansas, August 3, after an illness of eight days. He was 65 years old.

Dr. Rhoades was born at New Home, Missouri. His father died when he was six years old and the mother reared the family of four children. Dr. Rhoades attended the district school at New Home then attended college at Sprague. He taught school in neighboring communities in order to obtain money for his medical education.

After completing his medical studies Dr. Rhoades began practice in Foster. He early became a member of organized medicine. He was president of the Bates County Medical Society in 1925, was a delegate to the Annual Meeting in 1928 and 1934 and alternate delegate in 1929.

Dr. Rhoades was a devoted husband and father, a loving friend and a kind and efficient physician.

He is survived by his widow, Mrs. Effie J. Rhoades, three sons and three grandsons.

MILTON SAMUEL GRAY, M.D.

Dr. Milton Samuel Gray, St. Joseph, was born January 28, 1870, at Garretsburg, Missouri, and died September 8, 1934, at Phoenix, Arizona.

He attended the common schools at Garretsburg and was graduated in medicine from the Central Medical College, St. Joseph, in 1896. He took several postgraduate courses in medicine in Chicago and New York City.

He was married to Miss Edna Hunter on September 9, 1897, in Craig, Missouri, where he practiced for ten years. He moved from Craig to St. Joseph where he remained in practice for twenty-eight years. He moved to Arizona in 1933.

Dr. M. S. Gray was a lovable character. He was honest and upright in every respect; a good father and a congenial neighbor.

Resolved, By the Buchanan County Medical Society that we have lost a good friend and worthy member by the death of Dr. Gray; that we extend to his family and friends the deepest sympathy; that the secretary of this Society be instructed to place a copy of these resolutions in the record book of the Society and that a copy be sent to his family.—Necrology Committee of the Buchanan County Medical Society.

JAMES R. HUNT, M.D.

Dr. James R. Hunt, Macon, a graduate of the Beaumont Hospital Medical School, St. Louis, 1897, died at his home July 25, aged 60 years. He had been in failing health for over two years.

Dr. Hunt was born in Macon County and spent his early years in the Friendship community. He received his college training at the University of Missouri. Following his medical studies at the Beaumont Hospital Medical School he took postgraduate work in New York City. He practiced in Ardmore and Callao for fifteen years then again took postgraduate work specializing in electrotherapy. Following this he began his practice in Macon and had been there for twenty-one years at the time of his death.

Dr. Hunt was a successful practitioner and his jovial disposition endeared him to all who came in contact with him. He was a member of the Macon County Medical Society and was active in political and civic affairs.

He is survived by his widow, Mrs. Nellie Hunt.

GRANVILLE A. RICHART, M.D.

Dr. G. A. Richart, Blackburn, a graduate of the University of Louisville School of Medicine, Louisville, Kentucky, 1886, died at his home May 5 after an illness of less than a week. He was 74 years old.

Dr. Richart came to Missouri from Kentucky with his parents at the age of 15 and remained in Missouri with the exception of the time spent in the study of medicine. He had practiced in Blackburn for forty-two years and had endeared himself to the people of his community.

He became allied with the Saline County Medical Society early in his career and was a loyal member. He was a member of the visiting staff of the Research Hospital in Kansas City.

Dr. Richart is survived by his widow, Mrs. Effie Richart, two sons, two grandchildren and two sisters.

EDWIN H. MUSSON, M.D.

Dr. E. H. Musson, Norborne, a graduate of the University of Michigan Medical School, 1900, died at St. Luke's Hospital, Kansas City, June 7, aged 65 years. He had been in ill health for several years.

Dr. Musson was born in Utica, Missouri, and received his preliminary education in that community. After completing his academic and medical work at the University of Michigan he began his practice in Carroll County in the Stet community and for thirty-four years had answered the call of the ill. He was loved by all who knew him; he was ever ready at the command of his fellow citizens and they knew they could count on him no matter what the hardships of the trip might be or how meager the fee.

Dr. Musson became a member of the Carroll County Medical Society early in his practice and was an active and staunch member. He was president of the Society in 1920 and was a delegate to the Annual Meeting in 1928.

He is survived by his widow, Mrs. E. H. Musson, a daughter, two sons, one brother and three sisters. One son is Dr. Eldred K. Musson, Jefferson City, state epidemiologist.

LEVI SAMUEL LONG, M.D.

Dr. Levi S. Long, St. Joseph, was born August 12, 1871, in the State of Pennsylvania and died August 10, 1934, in St. Joseph.

He attended the Kutztown Normal School and the University of Pennsylvania after which he attended the Jefferson Medical College, Philadelphia. In 1892 he was graduated from the Baltimore Medical College and in 1918 he received a degree in law from the St. Joseph Law School. Dr. Long took postgraduate medical courses in Washington, D. C., New York and Chicago. He was lecturer on the practice of medicine in the Northwestern Medical College and the Ensworth Medical College.

Dr. Long had a paralytic stroke in June, 1928, and after that he was unable to get around. He had another stroke in May, 1933, from which he died.

During the World War he was sent to Ft. Riley ranking as a major. From Ft. Riley he was sent to the Philippine Islands where he remained for a year. On his return to St. Joseph he again took up his profession and practiced until 1928.

Dr. Long was ever loyal to his patients and was an honest upright gentleman in every respect.

Resolved, By the Buchanan County Medical Society that we deeply regret the death of our fellow member and that we extend to his family and friends our deepest sympathy; that a copy of these resolutions be sent to his family and one be spread on the records of the Society.—Necrology Committee of the Buchanan County Medical Society.

ERNST JONAS, M.D.

Dr. Ernst Jonas, surgeon and general practitioner of St. Louis, passed away March 2, 1934.

He was born at Treptow a/D, in the Province of Pomerania, Germany, December 6, 1872, and received his degree of Doctor of Medicine from the University of Berlin in 1895. He was associated with Professor Olshausen in the Gynecological Clinic of Berlin from 1895 to 1899. During that time he met the late Dr. Herman Tuholske, St. Louis, and arranged to come here as his assistant and later associate in surgical and medical practice. He began his professional activities in St. Louis in 1900; married Miss Rose Tuholske, April 30, 1902, and continued his active professional work here until the time of his death. His surgical practice was largely concentrated at the Jewish Hospital of St. Louis and also included service at St. Luke's and St. John's hospitals and at the Baptist Sanitarium.

In the passing of Dr. Ernst Jonas, the medical profession and the community of St. Louis have lost a valued colleague and worker whose untiring devotion to medical science and humanity, whose loyal material and moral support of the activities in which he was interested, whose wide experience in clinical surgery and whose conscientious care of his patients were outstanding characteristics in his professional career.

On this special memorial occasion set aside by the St. Louis Medical Society to honor our departed colleagues, it is fitting that the name of Dr. Ernst Jonas be inscribed on the minutes of this meeting and in the records of the St. Louis Medical Society as one who has merited our recognition and respect.

Memorial occasions like this, as instituted by the St. Louis Medical Society, are glorious and inspiring, solemn and sad, and indicate by memorializing outstanding characteristics of departed colleagues, the elements and talents that have contributed to their success in professional and personal careers, and should stimulate us to emulate their example.

To me has been assigned the honor of saying a few words about our colleague, Ernst Jonas.—M. A. G. in the report of the Necrology Committee of the St. Louis Medical Society.

GEORGE W. FLYNN, M.D.

Dr. George Flynn was born October 9, 1885, in Farmington, Missouri, and died August 23, 1934, in St. Louis, Missouri, of heart disease. He came to St. Louis with his parents at the age of six years and received his preliminary education in the St. Louis schools completing his medical course at the St. Louis University School of Medicine in 1910. He served one year internship at the old female hospital and worked for one year at the city dispensary. Since that time, until six months before his death, he enjoyed a very large private practice. Dr. Flynn was a member of the local, state and American Medical associations.

On June 18, 1913, he married Miss Clara Heine, of St. Louis, who was to him a dutiful wife and a great assistant in his labor. He is survived by his wife, two sons and a daughter.

George Flynn as a young man always had a very high ideal of life, always was well liked by every one who knew him. He was industrious and besides working his way through school was the main support of his widowed mother until the time of her death.

Dr. George Flynn as a physician was tireless in the performance of his duties to his patients. He gave all his life to the relief of suffering humanity. Much of his work was among the poor where he expected and received very little remuneration, however, he had a varied practice which extended to a large number among the better class of our community. He was very skilled in diagnosis and treatment as well as most conscientious, and many patients realize what they have lost in his untimely death.

Dr. Flynn as a man was well liked by all who knew him. To me his life was an open book. I knew all his faults as well as his many virtues, he had no secrets from me and only as such can one really know a man. His virtues so overshadowed his faults that one never thought of the faults, but of the man. He was a good husband and father and true to the sacred trust placed upon him in the conduct of his profession. He lived that beautiful life that conforms to the belief in the Fatherhood of God and the Brotherhood of Man.—E. B. in the Weekly *Bulletin* of the St. Louis Medical Society.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

Barry County Medical Society, May 15, 1934.

Ray County Medical Society, October 10, 1934.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met in McAlester Hall, University of Missouri, Columbia, October 2. A fair attendance was augmented by the presence of the second year medical students in the Department of Medicine of the University.

The meeting was called to order by the president, Dr. A. R. McComas, Sturgeon.

Dr. H. McClure Young, Columbia, was proposed as a candidate for membership by transfer from the St. Francois-Iron-Madison-Washington County Medical Society. This application was given to the board of censors to be returned for action at the next meeting.

An extremely interesting paper and discussion of cases on "The Surgical Treatment of Pulmonary Tuberculosis" was given by Dr. James Forsee of the Fitzsimons General Hospital, Denver. The Captain pointed out that early pneumothorax followed at once by phrenicectomy was the method of choice in the treatment of cavitation, and still later followed by thoracoplasty if the previous method failed to arrest the condition. The details of the method and technic furnished an evening full of good discussion and the paper was well received.

Maurice E. Cooper, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital, September 19.

The applications for provisional membership of Drs. H. E. Petersen, Ernest E. Wadlow, Robert S. Minton and Jacob Kulowski were read and referred to the board of censors for further consideration.

A letter was read from the family of the late Dr. L. S. Long acknowledging with sincere thanks the kind expression of sympathy from the members of the Society.

Dr. H. E. Petersen, St. Joseph, spoke on "Diabetes Mellitus in Children." The discussion was opened by Dr. Roger Moore and continued by Drs. Judson Hughes, C. A. Good, J. T. Stamey, L. H. Fuson and T. L. Howden and closed by Dr. Petersen. The paper was well prepared from a scientific standpoint and many valuable points were brought out in the discussion. Dr. Petersen deserves much credit for the able manner in which he handled his subject.

Meeting of October 3

The Society was called to order by the vice president, Dr. Paul Forgrave, in the Missouri Methodist Hospital.

The following doctors were elected to provisional membership: Drs. Robert S. Minton, H. E. Petersen, Ernest E. Wadlow and Jacob Kulowski.

Dr. John I. Byrne moved that the advertisements of members in church papers be investigated and stopped. After considerable discussion this was referred to the publicity committee.

The necrology committee presented obituaries on Dr. Levi S. Long and Dr. Milton Samuel Gray.

The chaiman of the committee on revision of by-laws read his report which will come up for final action at the next meeting.

Dr. T. M. Paul, St. Joseph, read a paper on "Result in a Case of Glaucoma Treated With Splenic Extract" with notes from Dr. E. A. Miller. Discussion was by Drs. J. M. Bell, W. H. Minton, P. P. Fulkerson, Whitsell, R. M. Waller, J. I. Byrne and A. H. Muench and closed by Dr. Paul. This was an interesting paper, well delivered and well received.

Emmett F. Cook, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met on September 10 in the courthouse at Jackson. In the absence of the president, the vice president, Dr. D. I. L. Seabaugh, Jackson, took the chair.

Members present were Drs. B. W. Hays, D. I. L. Seabaugh, D. G. Seibert and G. W. Vinyard, Jackson. Guests were Drs. G. J. Tygett and Paul Nussbaum, Cape Girardeau.

Dr. G. W. Vinyard, Jackson, read a paper on "De Stercoribus Taurorum." After extensive discussion during which much wisdom was poured out the meeting adjourned.

Meeting of October 8

On October 8 the Cape Girardeau County Medical Society met in regular session at Jackson in the offices of Drs. D. I. L. Seabaugh and R. Seabaugh. In the absence of the president, the vice president, Dr. D. I. L. Seabaugh, presided.

Members present were Drs. D. I. L. Seabaugh, D. G. Seibert and G. W. Vinyard, Jackson; J. J. Drace and C. A. W. Zimmermann, Cape Girardeau. Drs. Rusby Seabaugh, Jackson, and G. J. Tygett, Cape Girardeau, were guests.

Dr. M. R. Shelby, Cape Girardeau, who was to have been one of the essayists, was unable to attend.

Dr. D. I. L. Seabaugh, Jackson, spoke on "Pneumonia; Its Treatment and Diagnosis."

After a discussion in which all members participated the meeting adjourned.

C. A. W. Zimmermann, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society met at the Bothwell Hotel, Sedalia, on October 15 with the following members present: Drs. D. P. Dyer, John E. Mitchell, John B. Carlisle, C. G. Stauffacher, Albert J. Campbell, W. T. Bishop, M. P. Shy, C. D. Osborne, A. L. Walter, W. A. Beckemeyer, W. M. Wheeler, C. B. Trader, A. E. Monroe, E. C. Snavely and F. R. Morley, Sedalia; E. E. Holtzen, Smithton, and H. A. Hite, Green Ridge. Drs. Frank R. Teachenor and T. G. Orr, Kansas City, and H. G. Savage, Warsaw, were guests.

Dr. Frank R. Teachenor, Kansas City, gave a paper on "Some Practical Aspects of the Brain Tumor Problem." This was illustrated with lantern slides and was highly interesting and instructive.

Dr. T. G. Orr, Kansas City, spoke on "What Results May We Expect in the Treatment of Cancer and Ulcer of the Stomach?" This was also illustrated with lantern slides and was a valuable contribution. A discussion followed.

John B. Carlisle, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Advisor, Dr. J. F. Harrison, Mexico.

For members of auxiliaries not familiar with the "Handbook for State Auxiliaries" and for other doctors' wives who may be interested a word concerning the handbook seems desirable. When Mrs. Arthur B. McGlothlan, St. Joseph, was national president in 1931-32 she realized the need of such a guide and initiated the work which resulted in the present valuable handbook.

Part I gives convincing "Reasons for a Woman's Auxiliary with Review of Present Functions." The stated "functions," with ample explanations are social, philanthropic, legislative, educational and public relations. The last named includes promoting the distribution of *Hygeia.*

Part II sets forth the duties of the officers of a state administration and of the organization chairman.

Part III, the educational section, supplies most helpful information concerning the procedure for meeting successfully the "duties and responsibilities" of the state and local chairmen of program, *Hygeia,* public relations and press and publicity. The Auxiliary official health program closes Part III.

Part IV is devoted to the state convention, its purpose, program, factors that make for success and technic. This section might well be used as a model, easily adapted and invaluable, for the procedure in connection with the state convention of any organization.

The handbook is indispensable for meeting successfully the "duties and responsibilities" of state and county officers and chairmen. Also, it is a source of interesting and helpful information to all doctors' wives, those who are and those who are not Auxiliary members.

If a copy of the "Handbook" is desired write Mrs. J. Newton Hunsberger, 514 West Main Street, Norristown, Pennsylvania, enclosing 40 cents and she will send one. Mrs. Hunsberger is the national chairman of supplies and receives no remuneration for handling the handbook.

AUXILIARY NOTES

At the fall meeting of the National Auxiliary Board Missouri was represented by the state president, Mrs. W. H. Goodson, Liberty; the national program chairman, Mrs. A. B. McGlothlan, St. Joseph, and the national public relations chairman, Mrs. David S. Long, Harrisonville. Revision of the national constitution was the chief subject under discussion.

The third annual Essay Contest sponsored by the state Auxiliary is going forward under the direction of the president-elect, Mrs. M. Pinson Neal, Columbia. The subject for this contest is "The Doctor's Contribution to a Half Century of of Progress (1875-1924 inclusive)."

Mrs. Neal, whose address is 1309 Bouchelle Avenue, Columbia, will be glad to supply the rules of the contest, a fine list of reference material and any other information desired concerning the contest.

The Boone County Auxiliary, quiet from June to October, is again active. The new president, Mrs. M. D. Overholser, Columbia, returned September 30 from Memphis and conducted the first meeting on October 4. The program chairman, Mrs. M. P. Ravenel, Columbia, made a report of interesting plans for the year. The essay contest will be under the direction of Mrs. Edgar D. Baskett, Columbia.

The patients in the Tuberculosis Sanitarium at Joplin have *Hygeia* in their reading room as a gift from the Jasper County Auxiliary.

Dr. Sara Barnard, Rolla, press and publicity chairman of the Auxiliary of the 26th District Medical Society, reports a fine meeting at Rolla September 10 with members attending from St. James, Salem, Newburg, Crocker and Rolla. A member of the East St. Louis (Illinois) auxiliary was present and brought greetings from the auxiliary of that city. A paper on "Trachoma" by Mrs. A. A. Drake, Rolla, and one on "Highlights of Medicine in the Last Fifty Years" by Mrs. W. H. Brewer, St. James, brought interesting discussions. Two new names were added to the membership. This Auxiliary meets the second Monday of each month with the hospital staff of the Rolla Hospital.

In the Lafayette County Auxiliary the Essay Contest is supervised by a committee of three each having charge of a different part of the county. This Auxiliary at its first fall meeting paid tribute to Dr. Katherine Richardson, Kansas City, founder of the far-famed Mercy Hospital of Kansas City and to their own loved and honored Mrs. E. L. Johnston, Concordia. "Service Brings More Than Gold" by a pioneer doctor was read by Mrs. Lightner.

Many members of the Jackson County Auxiliary were busy the first week in October assisting in the entertainment of the women accompanying their husbands who came to attend the fall conference of the Southwest Clinical Society. The second vice president, Mrs. James E. Stowers, Kansas City, was general chairman of arrangements. The various and delightful social program included a tea, a luncheon, a theatre party, an evening at the Nelson Gallery of Art and an escorted tour to places of special interest in the city. The committee chairmen included the president of the Jackson County Auxiliary, Mrs. H. S. Valentine, Kansas City.

The Cape Girardeau Auxiliary devoted its first fall meeting to planning the program for the coming year. This will include a public relations meeting November 8 to which the clubs interested in health work will be invited. The subject of blindness will be presented. Increasing the membership is another important item in the year's program.

The Cole County Auxiliary held its first quarterly meeting October 8 at the home of the president, Mrs. Frank Gillham, Jefferson City. Fifteen members were present.

The Buchanan County Auxiliary opened the year at St. Joseph with a luncheon October 10. An address was presented by Dr. Jacob Geiger, St. Joseph, on the "Medical History of St. Joseph."

MISCELLANY

MISSOURI RELIEF AND RECONSTRUCTION COMMISSION

The following compilation of the actual amount of money spent for medical relief in the State of Missouri during the months of July, by counties, showing the percentage of medical relief to total relief extended, was furnished by George W. Baughman, director of finance and statistics of the Missouri Relief and Reconstruction Commission.

County	Medical Care	Total Direct Relief	Percentage of Medical Care to Total Relief
Adair	$ 574.60	$ 1,959.58	29.32
Andrew			
Atchison			
Audrain	70.00	640.00	10.94
*Barry	11.50	595.30	1.93
*Barton	175.50	1,412.00	12.43
*Bates	53.50	605.36	8.83
Benton			
*Bollinger	33.75	491.34	6.87
Boone			
*Buchanan	520.07	14,014.79	3.71
*Butler	34.35	3,936.25	.87
Caldwell			
Callaway			
*Camden	18.00	341.05	5.28
Cape Girardeau			
Carroll			
*Carter	22.20	415.58	5.34
Cass			
*Cedar	19.15	585.26	3.27
Chariton			
*Christian	55.90	455.40	12.27
Clark			
*Clay	257.34	4,669.02	5.51
Clinton			
*Cole	21.25	1,115.53	1.90
Cooper			
*Crawford			
Dade			
*Dallas	16.40	372.02	4.41
Daviess			
DeKalb	70.00	136.33	51.34
*Dent	10.44	603.52	1.73
*Douglas	1.50	506.64	.29
*Dunklin	198.52	3,389.95	5.86
Franklin			
Gasconade			
Gentry			
*Greene	21.25	10,699.98	.20
Grundy			
Harrison			
Henry			
Hickory	50.00	500.00	10.00
Holt			
Howard	41.75	224.79	18.57
*Howell	17.90	768.76	2.33
*Iron	24.90	2,005.87	1.24
*Jackson	960.20	8,062.28	11.91
*Kansas City	2,719.19	100,121.81	2.72
*Jasper	473.29	24,580.76	1.93
*Jefferson	80.89	4,559.35	1.77
Johnson			
Knox			
*Laclede	27.90	493.70	5.65
Lafayette			
*Lawrence	113.20	1,479.02	7.65
Lewis			
Lincoln			
Linn	27.00	783.25	3.45
Livingston			
*McDonald	95.65	1,089.56	8.81
*Macon	20.60	1,347.59	1.53
*Madison	28.00	1,944.05	1.44
*Maries			
*Marion	68.55	1,033.22	6.63
Mercer	32.00	205.79	15.55
Miller			
Mississippi			
Moniteau			
Monroe			
Montgomery			
*Morgan			
*New Madrid			
*Newton	19.50	2,278.47	.86
Nodaway			
*Oregon	14.95	508.28	2.94
Osage			
*Ozark			
*Pemiscot	312.75	3,936.43	7.94
Perry			
*Pettis	190.99	4,499.51	4.24
*Phelps	17.58	676.24	2.60
Pike			
Platte	2.00	431.93	.46
Polk	110.00	579.40	18.99
Pulaski			
Putnam			
*Ralls	41.35	694.85	5.95
*Randolph	206.64	2,508.93	8.24
Ray			
*Reynolds	3.00	682.40	.44
*Ripley	5.50	493.75	1.11
*St. Charles	44.25	514.38	8.60
St. Clair			
*St. Francois	1,871.71	11,824.65	15.83
Ste. Genevieve			
*St. Louis	687.14	102,059.37	.67
Saline	485.21	718.48	67.53
Schuyler			
Scotland	51.89	220.14	23.57
*Scott	161.53	1,956.96	8.25
*Shannon			
Shelby			
*Stoddard	129.09	2,497.22	5.17
*Stone	147.15	687.36	21.41
Sullivan	54.50	90.42	60.27
*Taney	17.37	540.90	3.21
*Texas			
*Vernon	98.06	1,336.25	7.34
Warren			
*Washington	59.30	2,218.80	2.67
*Wayne	42.05	590.43	7.12
*Webster	55.83	386.64	14.44
Worth			
*Wright	5.86	394.43	1.49
*St. Louis City	5,933.22	660,840.31	.90
TOTAL	$17,734.66	$1,000,311.63	1.77

*Counties on Federal Relief.

There are no counties spending money for medical relief only.

The following counties are spending only local public funds for medical relief: Adair, Audrain, DeKalb, Hickory, Howard, Linn, Mercer, Platte, Polk, Saline, Scotland and Sullivan.

Amount Spent in Missouri for Medical Care From All Public Funds and the Per Cent to Total Relief Money Expended

Month	Medical Care	Per Cent to Total Direct Relief
1933		
September	$ 8,199.07	1.90
October	11,822.72	1.75
November	10,133.68	1.22
December	11,527.67	1.10
1934		
January	11,810.43	1.81
February	14,565.03	2.44
March	16,557.25	2.41
April	18,242.26	2.11
May	20,590.80	2.14
June		
July	17,734.66	1.77

BOOK REVIEWS

A Text-Book of Medicine. Edited by Russell L. Cecil, A.B., M.D., Sc.D., Professor of Clinical Medicine, Cornell University, Medical College; Associate Attending Physician, New York Hospital, New York City, and Associate Editor for Diseases of the Nervous System; Foster Kennedy, M.D., F.R.S.E., Professor of Neurology, Cornell University, Medical College; Director, Department of Neurology, Bellevue Hospital, New York City. Third edition. 1664 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1933. Price $9.00.

Cecil's Medicine, now in its third edition, is an abbreviated system of medicine. Each subject is covered in its important essentials by authorities.

The volume is especially valuable for medical students and as a reference work for the busy practitioner who has little time to study the more complete detailed analyses of medical topics. It should be a most valuable addition to any medical library. A. S.

The Technic of Local Anesthesia. By Arthur E. Hertzler, A.M., M.D., Ph.D., LL.D., F.A.C.S., Professor of Surgery in the University of Kansas, etc. Fifth edition with 148 illustrations. St. Louis: The C. V. Mosby Company. 1933. Price $5.00.

The fifth edition of Hertzler's book on local anesthesia retains, in general, the features which made the previous editions so useful to the general surgeon. Among these may be mentioned its convenient size, its brevity without sacrifice of essential details and the clear and concise way in which he presents the indications and the simplified technic which he has developed during many years of a very active practice.

He again emphasizes the advantages of infiltrative anesthesia rather than regional blocking and the use of minimum amounts of solution, accurately injected, over the haphazard infiltration of large quantities of fluid.

He calls attention to the importance of the proper selection of cases and mentions both the advantages and the limitations of the procedure. The author continues, very properly, to place novocaine at the head of the list of useful drugs because of its efficacy, safety and ease of application. Descriptions of the various operative procedures are clearly stated and wherever indicated they are illustrated with simple and effective drawings. The possibilities of local anesthesia in cranial surgery are noted, but he admits that intra-abdominal procedures still call for general except for special cases of those which are suited for spinal.

Dr. A. E. Spelman has written the chapter on the technic of spinal anesthesia and has done it well. Dr. R. F. Gard adds a short chapter on intravenous anesthesia, a form of anesthesia which, in the reviewer's opinion, might well be discarded. The author's lack of enthusiasm about splanchnic anesthesia is amply shared. This, as well as paravertebral blocking, has been largely eliminated by spinal. He considers local anesthesia a failure if it must be supplanted by general and that, in such an event, the patient has been injured.

As a general rule, the author does not recommend the use of large doses of preliminary hypnotics but does give enough morphine or amytal to relieve apprehension.

The fact that this manual has gone through five editions in a relatively short period of time, is evidence enough that it continues to fill a very real need.

A. O. F.

Infections of the Hand. A guide to the surgical treatment of acute and chronic suppurative processes in the fingers, hand and forearm. By Allen B. Kanavel, M.D., Sc.D., Professor of Surgery, Northwestern University Medical School, Chicago, etc. Sixth edition, thoroughly revised. Illustrated with 216 engravings. Philadelphia: Lea & Febiger. 1933. Price $6.00.

This book is divided into four parts. In the first part we find the anatomy of the hand and forearm with many of its excellent cross sections. The illustrations of the synovial sheaths and fascial spaces are well demonstrated. The diagnosis, prophylaxis and general principles of treatment are discussed. Infection of the hand relative to industry is also to be found in this chapter.

Part two considers the more localized infection, as infections of the distal phalanx including felon, paronychia and collar button abscess. Included here is some of the new material as infections from bites, tularemia, infection from teeth, indelible pencils and other peculiar infections. The gangrenous infections as streptococcic, symbiotic and gas gangrene are also discussed here.

Part three takes up lymphangitis and infections of major importance such as fascial space and tendon infections. The signs, symptoms, diagnosis and treatment are taken up in detail in each space and tendon. The author lays stress on the diagnosis and treatment of lymphangitis pointing out the great danger in making lymphangitis a radical surgical procedure in the absence of definite suppuration. Attention is drawn to the frequent missed diagnosis between lymphangitis and suppurative tenosynovitis.

Part four includes the complications, sequelae and after-treatment. Much has been added to the after-treatment, especially the effort to leave the hand in what Kanavel calls "position of functions."

Placing the anatomical discussion chiefly in part one is distinctly an advantage and an improvement. The book should be a part of the library of every student, general practitioner and surgeon. This book remains a classic in this field. J. G. P.

Functional Disorders of the Gastrointestinal Tract. By William Gerry Morgan, M.D., F.A.C.P., Professor of Gastroenterolgy, Georgetown University Medical School, etc. (Everyday Practice Series —Edited by Harlow Brooks, M.D.) 32 illustrations. Philadelphia and London: J. B. Lippincott Company. Price $5.00.

This is one of the "Every Day Practice Series" edited by Dr. Harlow Brooks. It is dedicated to Dr. Max Einhorn. According both to the author and the editor, the text is designed to present those gastro-intestinal complexes not associated with demonstrable pathology—those syndromes of the reflex, the neurogenic, or of psychic origin. There is, doubtless, a difficult task of separating the functional dyspepsias from those with associated demonstrable pathologic lesions, and one appreciates the wide chasm between demonstrable lesions of the general practitioner with no roentgen ray or laboratory assistance, and those found by the gastro-intestinal specialist with all modern available aids. Doctor Morgan finds some conditions with demonstrable pathology, it seems, such as acute and chronic gastritis and colitis which he places here among the neuroses. It may be hard to leave these out of consideration in this volume since they may obviously be borderline cases.

There are some unusual statements such as a "rather tall woman" who, it seemed, actually measured 58¾ inches; a diagnosis of "mitral stenosis" based on "a soft systolic murmur at the apex, and a loud harsh systolic murmur over the aortic area," and the wide use of argyrol in gastric and colonic lavage, and "Anusol" suppositories. The author dogmatically urges that the gastric lavage "should not be continued for longer than two or three weeks" without giving his reasons for the restriction.

In spite of the above, Doctor Morgan has dealt with a difficult subject in a careful manner. He has reviewed our present knowledge of the subject, at times perhaps, too briefly, as in the discussion of the "vagotonic-sympatheticotonic" balance in its practical applications, but all in all the text is clearly written and will be of major service, perhaps, to general practitioners and medical students. W. A. M.

Medicolegal Cases Abstracts of Court Decisions of Medicolegal Interest 1926-1930. Edited by Wm. C. Woodward, M.D., L.L.M., Director, Bureau of Legal Medicine and Legislation American Medical Association. Chicago, American Medical Association. 1932. Price

This is an interesting collection of court decisions on medicolegal cases from 1926 to 1930. It is interesting to note the allegations on which the various malpractice suits were based and the opinions of the courts as to what constitutes reasonable care and neglect. It appears oftentimes that points which the doctor would consider of ordinary or minor importance, will be given great emphasis and made a deciding factor in the final adjudication of the claim.

It would be well worth while for every physician to read this book to get the laymen's attitude and judgment on medical men and medical subjects.

E. C. F.

Nervous Breakdown: Its Cause and Cure. By W. Beran Wolfe, M.D., Director of the Community Church Mental Hygiene Clinic, N. Y. New York: Farrar & Rinehart, Incorporated.

This is a manual which can be read by every one of our "neurotics" and "neurasthenics" to much advantage, for it is well filled with stimulating encouragement for all the large group of "weak sisters." The work covers a wide field, from the simple and transient "blues" up to the borderline psychotic disorders; while nothing radically new is recommended the ideas presented are those of the current moment and are wholesome and sound. The text is brilliantly but rather loosely written in a clear-cut and clever style, and the author's sympathy for his introverts sticks out like a sore thumb in a fog! But we wish he had presented some compelling arguments to make our patients who need this book change their attitude of "I wish somebody would do something for me," to "Please tell me what I can do for myself."

The book is tendered in an attractive format and can be very highly recommended to any mature reader, even if he is the sort who likes to sit around and read medical books and patent medicine advertisements.

A minor fault is that the work has no index, and a more serious cause for complaint is that its padded table of "contents" is given in the old melodramatic scarehead sort of extensive and extended headlines. These same scareheads, with plenty of italics, are repeated as chapter subheadings, and then they receive a third and final repetition as division titles, most of the divisions being but a very few paragraphs in length.

C. D. H.

Intracranial Tumors. By Harvey Cushing, Professor of Surgery, Harvard Medical School, Surgeon-in-Chief, Peter Bent Brigham Hospital, Boston. Springfield, Illinois, Baltimore, Maryland: Charles C. Thomas Co. 1932. Price $5.00.

The author reviews a series of 2,000 verified cases of brain tumor with surgical mortality percentages. I know of no more comprehensive and instructive monograph than this volume, and it is forcibly brought home that the goal of an annual 10 per cent case mortality has actually been reached. This book should be thoroughly read by every member of the profession as it would help correct the faulty notions that the medical profession harbors at present.

The table of classification of verified tumors illustrated in case mortality as well as operative mortality is very striking and enlightening, and it is a sad thing to realize that the proportion of patients admitted in terminal stages after ill-judged procedures at the hands of surgeons with little or no neurosurgical training, is as large as it ever was. Until the general surgeon recognizes and realizes that special training is essential for the handling of these patients both as to operation and after care, the unsuspecting public will continue to be submitted to unskilled surgical therapy.

The astounding advance made by this specialty is beautifully illustrated in this monograph, not only as to case mortality but as regards tumors that five years ago were considered hopelessly inaccessible.

The pathological classification of tumors is very brief but for so small a volume it is remarkably well dealt with. Comment as to the author's ability is unnecessary as he is a peer in this work. It is unfortunate that a text of this type cannot be easily distributed in such a fashion that every man in the profession would have one at his finger tips. R. M. K.

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WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT PREVENTION OF EYE DISEASES

EMMETT P. NORTH, M.D.

AND

VINCENT L. JONES, M.D.

ST. LOUIS

As you know gonococcus infection may affect the eye directly as in gonorrheic ophthalmia and ophthalmia neonatorum gonorrheica, the latter being restricted to infection acquired at birth. It is in the control, if not practical elimination of ophthalmia neonatorum caused by gonococcus, that we can point to as one of the great achievements of public health instruction, legislation and enforcement.

Prior to the general use of the prophylaxis in the new-born; and when we say prophylaxis we mean Credé's method of instilling one drop of a 2 per cent silver nitrate solution into each eye of the new-born immediately after birth, the eyes having been first wiped with sterile cotton and if necessary washed with sterile water before instilling the silver solution. There are several modifications and slightly different procedures but the most popular and the first to be used was that described by Karl Sigmund Fraz Credé in 1881. Prior to the general use of this method 1 to 20 per cent of the new-born in various maternities developed a Neisser ophthalmia. Credé in his first published work in 1881, showed 13.6 per cent in 1874 and 0.49 per cent in 1880.

Lazar recently in a study of 4187 births at Cook County hospital from December, 1929, to January, 1931, found thirty-six cases of ophthalmia neonatorum of all types four of which were due to the gonococcus. This gives a good idea of the frequency when we make allowances for births under various conditions.

Of the different types of opthalmia neonatorum we might mention, (1) due to the prophylactic, the irritation set up by the silver nitrate, (2) bacterial; pneumococcus, streptococcus, staphylococcus, pyocyaneus, morax-axenfeld and gonococcus, (3) inclusion bodies.

The inflammatory reaction caused by the silver nitrate may attain alarming proportions, but of course the smears and epithelial scrapings are negative and cold irrigations and applications are all that is required to cure the condition promptly and completely.

In making smears the usual method of using a cotton applicator is not as satisfactory as dipping a platinum loop into the conjunctival sac and gently scraping along the floor so as to loosen a little of the epithelium; this will demonstrate organisms where a smear made with a cotton applicator will be negative.

Inclusion bodies are clusters of small granules in the epithelial cells; they stain to Giemsa. The blenorrhea credited to them develops in from five to thirteen days postpartum. The smears and epithelial scrapings are negative for gonococci, the course is benign and boric acid irrigations and cold compresses suffice for the treatment.

In silver nitrate ophthalmia the discharge develops on the first or second day following delivery. The smears and epithelial scrapings are negative for gonococci and cold irrigations and compresses are the best treatment.

A baby may be born with gonococcus ophthalmia well developed but usually it develops on the first to third day postpartum, the incubation period being a few hours to three days.

Of course the best treatment is prevention, hence the Missouri State Board of Health laboratories furnish, upon request and without charge all doctors of medicine, osteopaths, and midwives in this state, 2 per cent solution of silver nitrate in wax ampules to be used according to the Credé method, and of course the disease is reportable.

In gonococcus ophthalmia neonatorum the course is two to three days incubation period with two to three days of maximum inflammatory reaction and then a gradual subsiding of the inflammation. The lids become tremendously swollen; so much so that often it is al-

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most impossible to separate them to inspect the cornea; the bulbar conjunctiva also becomes edematous (chemosis) and a copious thick purulent discharge is present. The cornea may become infiltrated and veritably "melt" away, but this latter complication is more frequent in adults than in the new-born.

The gonococcus may also indirectly involve the eye; and by indirectly we mean that the primary seat of the disease is not in the eye or it's appendages but in some other part of the body. Uveitis is the most frequent form of this type of inflammation and may develop in either acute or chronic stages of gonococcus infection of any part of the body.

So also with syphilis; we have both the direct and indirect involvement of the eye. The direct referring to the primary lesion developing in the eye or its appendages and the indirect referring to the eye being involved in the secondary or tertiary manifestations of syphilis; of course the indirect may occur in either the acquired or congenital forms of syphilis. Suffice to mention parenchymatous or interstitial keratitis, uveitis or iritis, cyclitis and choroiditis, optic neuritis and atrophy as the more common manifestations of ocular syphilis.

In considering trachoma we find it a disease of disasterous consequences and fascinating interest. At one time the Europeans knew it as "Egyptian ophthalmia" as Napoleon's army was supposed to have brought it back from Egypt but later investigations prove that it had been endemic in Europe since antiquity. Celsus gives a very accurate description of this disease and it is of interest to note that the ancients treated trachoma by scarification which even today is practiced by many.

There was a time when it was generally believed and taught by many that the only trachoma in this country was that brought in by immigrants, but when the United States Public Health Service made a survey in the mountainous districts of Kentucky the shocking truth that we had plenty of trachoma of our own was learned and later when conditions were investigated in the Missouri Ozarks, trachoma was found to be a very widespread plague, so much that a United States Public Health hospital for the treatment of trachoma has been in operation for some years at Rolla, Mo. Of course many ophthalmologists knew there was trachoma in the mountainous regions of Kentucky and Missouri long before the United States Public Health Service made the surveys but we do not hesitate to say that not one of them but was greatly surprised to learn the full extent of this condition. But to those other than oculists it was like discovering a new disease. Although it was generally known that trachoma was prevalent amongst the American Indians, it apparently was assumed that it was an Indian weakness and his white brother was naturally immune. Trachoma was also prevalent in the old slave trading fleets, so undoubtedly it was introduced into this country at an early date, if it was not already flourishing amongst the Indians prior to the arrival of Columbus.

The older writers describe an acute stage of greater intensity than we usually experience, which if considered in conjunction with the knowledge that trachoma raged at times in veritable pandemic form, especially in Belgium, the probability of an immunity of at least some form does not seem unreasonable.

Various hypotheses have been advanced as to its etiology of which filterable virus, inclusion bodies and vitamin deficiency are of more recent vogue. In fact the demonstration of inclusion bodies in one type of ophthalmia neonatorum and in trachoma and the production of a chronic conjunctivitis with follicles similar to trachoma when the conjunctiva of apes was inoculated with the discharge from inclusion body blenorrhea by Lindner, revived the contention of Arlt, made many years ago, that trachoma was originally acquired from an acute blenorrhea.

The onset of trachoma is sometimes acute and severe; again it may be chronic and mild. The average is taken for descriptive purpose; there is congestion of the conjunctiva with papillae or follicular hypertrophy of the conjunctiva, most marked in the upper lid, photophobia, tearing, at times profuse mucopurulent discharge. Later the upper portion of the cornea becomes infiltrated and new blood vessels extend from the conjunctiva on to the cornea and we have a trachomatous pannus; the lids are thickened with resultant varying degrees of ptosis and the formation of ulcers on the cornea add to the misery of the patient. Then with the advent of the cicatricial stage the lid margins and cilia are turned inward, entropion and trichiasis are established, the insults to the cornea are increased and the ulcerative processes aggravated until pannus and ulcer scars form a veritable "apron" of scar tissue and blood vessels through which the patient can see little if anything. Of course the ulcerative processes may progress to perforation with resultant greater or lesser loss of vision if not of the eye itself. Both eyes are usually affected and if the disease is permitted to proceed unchecked the end result is a blind individual who most frequently becomes a public charge.

The dreadful sequelae of trachoma are best treated before they develop and by this we mean early diagnosis and treatment; the treatment must be adequate and the patient continued under observation for a prolonged period, hence the importance of the "follow-up" work done

by the United States Public Health Service in their trachoma work in this state. But the practitioner, no matter what the condition for which he is treating the patient or what the practitioner's specialty may be, should recognize a trachomatous eye and accept the responsibility of seeing to it that the case is properly cared for.

The transient blurring of vision, the dilatation of the pupils, and "rainbows" about lights should always suggest to every practitioner the probability of glaucoma in his patient, particularly if that patient is in the latter half of normal life expectancy. All cases of vascular hypertension should be examined expertly for glaucomatous tendencies. The indefinite headache, the increased ocular fatigability, many attacks of so-called indigestion, the toothache without sufficient dental pathology, all may be but manifestations of a glaucoma. We have had one patient who insisted upon her dentist extracting several teeth for the relief of several attacks of severe toothache. An examination of her eyes revealed an absolute glaucoma in one eye and a well advanced glaucoma in the other. This of course is an extreme case but it emphasizes the disaster which may follow failure to recognize early glaucomatous manifestations.

The green pupillary reflex so popularly cited as a diagnostic sign of glaucoma is a sign of absolute glaucoma and of course when such has developed its recognition is unfortunately a case of the pardon coming too late, as the eye is blind or so nearly so that the prognosis is hopeless. Glaucoma must be recognized and effectively treated early in its development if we are to hope for anything but a tragedy. Hence the importance of every practitioner and particularly those engaged in general practice, being familiar with the early manifestations of this dreadful condition, and watching for those manifestations in all of his older patients and in many of those not so old.

The ocular complications of cardiovascular disease, diabetes, and nephritis are quite generally known and as far as our personal experience goes are watched for by the men in general practice in a highly commendable manner, but their importance warrants our again bringing them to your attention.

The disastrous lack of development of vision in strabismus and congenital cataract cases make it imperative that the practitioner who has charge of babies and children should appreciate the importance of the early recognition and proper treatment of the conditions.

The sense of sight must be exercised in order that it may develop. Up to about four years of age the prospects of developing good vision are excellent; from four years of age to about eight or ten the prospects are progressively less promising and after ten years of age the probabilities of developing an appreciable increase in visual acuity are not good; hence the urgency of instituting effective measures as early as possible.

Any congenital cataract which interferes with vision should be removed by surgical means as the first step in obtaining a useful eye for the patient; there should be no procrastination, no lack of decision, for delay is disastrous.

So also with the strabismus case, be it of the paralytic or accommodative type, it is of utmost importance to begin corrective treatment as soon as possible. The old fallacy of waiting until the child attains school age is still too frequently heard although it is fortunate in these cases that the average age for children to enter kindergarten or school is now five years instead of the former eight; but even at five years of age much valuable time has been lost in the development of the eyes of these children.

If the strabismus is due to a paralysis or weakness of a muscle or muscles exercises may accomplish a great deal, or surgical intervention may be necessary; if the strabismus is caused by an excessive accommodative effort as in hyperopia of high degree there is a proportionate excessive convergence with the result that the eyes are in a state of convergence when viewing a distant object and therefore that object does not stimulate corresponding portions of the retina of the two eyes the result being a diplopia; the increasing effort to focus the object more clearly calls for an increasing accommodative effort with a proportionately increased convergence the end result being that one eye will receive the stimulus in the macula lutea whilst the other eye receives the stimulus outside of the macula lutea. Of course the image from the macula lutea will be clearer and the individual striving for single vision will eventually suppress the poorer image. This continued for a time leads to habitual suppression of the stimulus received by one eye and the constant turning in of that eye. The "fixing" or "seeing" eye being exercised will develop whereas the "crossing" or "squinting" eye does not develop. Amblyopia ex anopsia, weakness of vision from nonuse, is the result.

Relieving the need for excessive accommodative effort by the use of proper lenses may be all that is necessary to restore single binocular vision, or the forcing of the weaker eye to function with the aid of lenses plus various procedures, as atropinization, occluding the fixing eye, fusion exercises, etc., or it may be necessary to resort to surgery with or without the subsequent use of lenses and fusion exercises.

The frequency of ocular inflammatory changes caused by a focus elsewhere in the body and the seriousness of such ocular damage should warrant a full appreciation of these tragedies whenever the problem of removal of a po-

tential focus of infection is considered. Far better to lose one or all of your teeth or have your tonsils removed, or your paranasal sinuses opened than procrastinate until you have lost an eye.

Too often "the barn is locked after the horse has been stolen." Too many individuals are blind because they waited until an optic neuritis, uveitis or other ocular disease had developed before they decided upon having a focus of infection removed or efficiently treated.

It is known by all that the teeth, tonsils, paranasal sinuses, prostate, kidneys, gallbladder and many other organs may harbor a chronic infection which may be the source of a disastrous inflammation elsewhere in the body. Too many of us are satisfied to let a chronic tonsillitis of paranasal sinusitis run on for years with little or no attention; possibly we have such a condition ourselves trusting that nature will be kind to us. Fortunately nature is often most kind and generous to us, but many times an ocular inflammation develops which is always potentially serious. Few if any of the focal affairs develop without repeated minor reactions which should have been interpreted as a warning.

The responsibility of early recognition and proper disposition of these ocular tragedies is the general practitioner's. The best treatment is always prevention and it is to the general practitioner that we must look for this prevention.

3511 Washington Blvd.

DISCUSSION

Dr. M. Pinson Neal, Columbia: In some European countries a toll system of medicine, an insurance plan of medicine if you will, has been developed. Here in Missouri, the state offers a reward—a reward, mind you—for every man, woman or child who goes blind from trachoma. You would be surprised to know of some of the abuses that have occurred in this program. Almost within the shadow of our capitol on the banks of the muddy Missouri, within a few miles of Jefferson City, and in many other communities, there have been found men, women and children hiding behind doors, in cellars, in storm pits, or under beds, concealing themselves to avoid treatment that is brought to their very doors. Day by day they wait until they can qualify for the miserable pittance the State allows them for being totally blind. It is an abuse of an intended humanitarian service and policy that calls for condemnation and correction. These people get less than a dollar a day, and yet they sit around and wait for complete blindness in order to get that pension. If a doctor goes to serve them, they hide or are put in the cow barn until he goes away. They do not want to be treated; they want the little toll that the State awards for blindness.

This is not aimed as a tirade against the care of the legitimate helpless, unfortunate and needy. For these, no one more than I has more regard or consideration, or would go further for their relief. It is brought up to call to your attention a condition, an insurance-like plan, that encourages men, women and children of our commonwealth to sell their vision and to permanently establish themselves on a state pension of three hundred dollars a year. This is an example of what might be called insurance in medicine, and of misguided and improperly controlled philanthropy by the State.

DERMOID CYSTS OF THE MESENTERY

J. G. MONTGOMERY, M.D.
AND
F. STANLEY MOREST, M.D.
KANSAS CITY, MO.

There are only eight instances of proved dermoid cysts of the mesentery (Cornies,[1] Sommer,[2] Piermarini,[3] Cortella,[4] Judd and Fulcher[5] and Ugelli[6]). This speaks conclusively for its rarity.

A dermoid cyst consists of epidermal structures formed by inclusion of ectoderm during embryonic fusion. This may be found at the point of union of ectoderm with other structures, or where ectodermal invagination exists, or where there are persistent embryonal ectodermal structures. Ewing[7] states that trauma of the ectoderm can cause dermoid cysts and cites cases of experimental production.

Dermoid cysts were first described in 1852 by Lebert who applied the term "dermoid" to all cysts lined by a cyst wall resembling in structure that of skin. They are most frequently found in parts of the body where different germinal layers meet during development as about the orbita, neck and coccygeal region. They develop most frequently at puberty although they occur as congenital tumors. These cysts have been found in a surprising number of places. Common sites are subcutaneous tissue, ovaries and mediastinum. Other locations include skull, pia mater, hypothalamus, fourth ventricle, hypophysis, optic nerve, cerebellum, spinal canal, cauda equina, eyelid, conjunctiva, sclera, cornea, frontal sinus, mastoid, face, nose, tongue, sublingual region, tonsil, pharynx, neck, larynx, shoulder, phalanges, breast, pleura, lung, umbilicus, inguinal canal, femoral canal, peritoneum, omentum, mesentery, stomach, pancreas, kidney, cecum, retroperitoneum, rectum, clitoris, spermatic cord, urachus, bladder, round ligament, fallopian tube, broad ligament, uterus, back, sacrum and coccyx.

As to size these cysts vary from 5 cm. to 15 cm. in diameter and weigh from a few ounces to several pounds. They are of a slate gray color, thin walled, and their contents have a golden yellow appearance. Fluid inside the cysts contains cholesterin crystals and sebaceous matter which causes

the fluid to "set" when cold. Dermoids may contain skin, hair, sebaceous glands, sweat glands, hair follicles, cartilage, bone or teeth. Hair is loose or tangled. Teeth are free or attached to an imperfect jaw. Pieces of bone are rudimentary long bones or part of a skull. Secondary changes are frequent and include suppuration, perforation, papillary ingrowths, overgrowth of dermal structures and neoplastic changes. Infection of the interior of the cyst by entrance of pyogenic bacteria occasionally takes place. This results in distension and thus infection extends beyond the limits of the sac producing peritonitis in the case of intra-abdominal dermoids. Perforation of a benign cyst spontaneously, or inadvertently during removal, has resulted later in the growing of tufts of hair on peritoneal surfaces, while in cases of malignant cysts metastatic peritoneal carcinomatosis subsequently developed.

Microscopically there is nothing characteristic regarding the investing tunic. The lining membrane consists of skin, often so thin as to defy recognition but in other places thick and sufficiently intact. There is no hornified layer but corium, stratum germinativum and papillae are present with an underlying fibrous stroma in which sebaceous and sweat glands along with hair follicles are often found.

REPORT OF CASE

History.—Mr. L. J., aged 21, was admitted to St. Joseph's Hospital, May 21, 1933. There were no complaints. A tumor mass seemingly in the abdominal wall had been discovered only at examination and its removal advised. Past history and family history did not have any bearing on his condition.

Physical Examination.—Patient well nourished. Head, neck, eyes, ears, nose and throat essentially negative. Lungs clear. Heart tones were of good quality. Cardiac rhythm regular. Over the upper portion of the right lower quadrant of the abdomen a firm, regular, easily movable tumor mass the size of a lemon was palpable apparently in the sheath of the rectus muscle. There was no tenderness or spasticity. Extremities were negative. Neurological examination was negative. Blood pressure in millimeters of mercury was 132 systolic and 70 diastolic. Temperature was 98.6 F.

Laboratory Examination.—The erythrocytes numbered 5,730,000 per cubic millimeter; hemoglobin, 100 per cent (Haden); leukocytes 8400; coagulation time three minutes. Urine was negative. Wassermann, Kahn and Kline tests were negative.

Operative Technic.—The abdomen was opened through a lower right rectus incision. The tumor lying in the mesentery adjacent to the cecum was dissected off the cecal wall with gauze. Some places adhesions were so dense that sharp dissection with scissor points was necessary. The tumor was carefully enucleated from the mesentery. It did not invade nor was it attached to the serosa of the intestine. There were no bleeding vessels. Exact location has been sketched in figure 1. Routine appendectomy was done and the abdomen closed by layers without drainage.

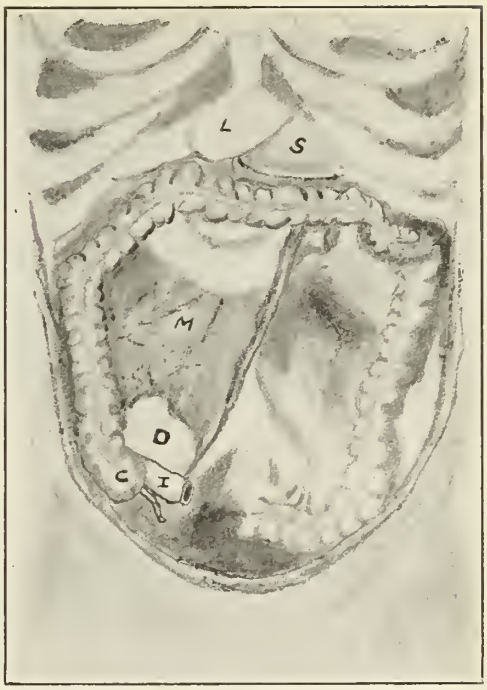

Fig. 1. Site of dermoid cyst in mesentery. (M) mesentery (cut), (C) cecum, (I) ileum, (L) liver, (S) stomach, (D) dermoid.

Pathological Examination.—This pathological study was made by Dr. Emsley T. Johnson. Grossly, specimen consisted of an egg-shaped cyst which measured 5 cm. by 4 cm. by 3.5 cm. It was thin walled and filled with cheesy material scattered through which were found a few loose hairs. Appearance of tumor can be seen in figure 2. Microscopically the wall of the cyst was quite thin. The inner surface was lined with a flattened layer of squamous epithelium upon which were patches of desquamating keratin or debris. The subepithelial zone showed only connective tissue in which there were no sebaceous or other glandular structures. There was no cartilage or teratomatous element and no suggestion of malignancy in multiple

Fig. 2. Gross specimen showing thin cyst wall and cut surface.

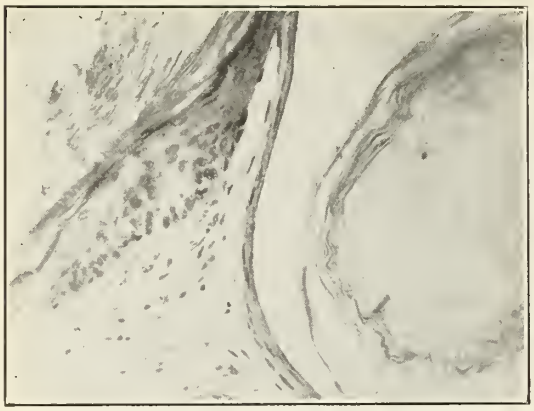

Fig. 3. Showing squamous epithelium, connective tissue and debris.

sections studied. A photomicrograph of one of the sections is shown in figure 3.

Progress Note.—After an uneventful convalescence the patient left the hospital June 1, 1933, the ninth postoperative day. He was seen to be in good health May 15, 1934.

DISCUSSION

Dermoids grow slowly and produce no pain except from pressure or when they become infected. Sudden increase in the size of a dermoid which has been quiescent indicates either infection or transformation of a benign into a malignant tumor. Torsion of a dermoid cyst of the mesentery would produce symptoms similar to those of an ovarian cyst twisted on its pedicle. Sudden interference with its blood supply would lead to gangrene and necrosis and demand prompt surgical intervention.

Roentgenologic[8] examination of tumors of the mediastinum and abdomen often aids in establishing the diagnosis of dermoids. It should always be kept in mind during the extirpation of dermoids that they are prone to be infected, hence, these infected cysts must be removed carefully to prevent a fatal mediastinitis or peritonitis. While dermoid cysts are grossly benign examination of multiple microscopic sections should be made in every case to rule out carcinoma or sarcoma.

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ENDOCRINE DIAGNOSIS AND THERAPY IN GYNECOLOGICAL CONDITIONS

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We are now emerging from the empirical era of endocrine diagnosis and therapy into that of more careful clinical observation and laboratory study. Rapid progress has been made in all endocrine fields but nowhere has the new knowledge proved so important as in gynecology. It is surprising to remember that despite the seeming rapidity with which new facts are crowding in on us, it has been a full thirty-five years since the demonstration of the hormonal function of the ovary. In 1863 Pflüger pronounced his neurogenic theory of menstruation. In 1899 this was shown to be false and it was definitely proved that an internal ovarian secretion is necessary to the maintenance and development of the sexual apparatus and to the production of menstruation. Knauer[1] and Halban[2] in Germany, Marshall and Jolly[3] in England, and Glass[4] and Morris[5] in this country made the observations demonstrating that in both man and animals a hormone from the ovary governs these functions.

Early investigators described the cyclic changes in the ovarian follicle and the development of the corpus luteum. A classic series of experiments begun by Fränkel and Cohn[6] in 1901 established the corpus luteum as an organ of internal secretion. These investigators found that in rabbits if the corpus luteum were removed before the implantation of the embryo in the uterus pregnancy did not occur; and the removal of the yellow body early in the pregnancy caused abortion or resorption of the fetus. In 1907 Leo Loeb[7] reported studies demonstrating that the formation of the placenta depended upon the corpus luteum. For many years it was believed that the corpus luteum was the source of the hormone causing estrus and growth of the sexual apparatus as well as of the nidatory factor which prepares the uterus for implantation of the fertilized ovum and protects it during pregnancy.

THE TWO OVARIAN HORMONES

Continued investigation has made it apparent that the ovary produces two hormones each with a distinct function. One of these, called estrin or folliculin, now more generally known as theelin in this country, is the estrus-inducing factor, while the other, from the corpus luteum, is the nidatory

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hormone. Potent estrus-inducing extracts were prepared as early as 1912 but it was not until 1923 that biologic assay of the ovarian estrogenic principle was reported by Allen and Doisy.[8] Their extracts were made from fresh follicular fluid from hog ovaries and were capable of producing estrus in spayed rats, and the potency was expressed in "rat units." Whole ovaries or placental tissue were found to yield the same principle. In 1927 Aschheim and Zondek demonstrated the presence of the hormone in large amounts in the urine of pregnant women, thus providing a source abundant enough to be available for clinical trial. Doisy, Veler and Thayer[9] prepared the hormone in crystalline form and named it "theelin."

Another substance closely associated with theelin often appears with it in extraction. This substance is a hydrate of theelin, which Doisy calls "theelol." Its formula is $C_{18}H_{24}O_3$ while theelin is $C_{18}H_{22}O_2$. Marrian[10] analyzing the substances chemically, calls theelin "keto-hydroxy-estrin" and theelol "tri-hydroxy-estrin." The chief importance of theelol is that it is active orally, and is capable of producing estrus in castrated animals and precocious sexual development in immature animals in intensity similar to that produced by theelin injections.

The blood in the latter half of pregnancy contains theelin in large amounts. The blood of a normally menstruating woman contains only small amounts of theelin. There is a rapid rise in the week just before menstruation, reaching a peak at its onset and rapidly falling during the period practically to zero. Biologic assay of the amounts of theelin in blood and urine has been found useful in the diagnosis of menstrual disorders. Kurzrok,[11] Anspach and Hoffman[12] and others have found such observations of value in determining treatment of functional gynecologic disturbances. Many menorrhagias and metrorrhagias are dependent upon a relative or absolute increase in the estrus-producing hormone (theelin) over the corpus luteum hormone. Ovaries lacking in corpora lutea are frequently found in such cases. Geist[13] found follicle cysts lined with lutein cells in the ovaries of 23 young women under the age of 40 with functional uterine bleeding. Excess theelin production results in excessive and irregular menstrual bleeding as a result of the consequent abnormal proliferation of the endometrium. Deficient theelin production is found in some patients with amenorrheas and in sexally underdeveloped women. No theelin occurs in blood or urine after the menopause or sterilization by operation or radiation with roentgen rays or radium.

The second ovarian hormone, produced by the corpus luteum and responsible for progestational changes in the uterine endometrium, has, in addition, other functions. The corpus luteum hormone inhibits ovulation and depresses the contractility of the uterus. Theelin injections can restore uterine motility after ovariectomy in animals. Injection of corpus luteum extracts can abolish the motility restored by theelin injections. Development of the typical premenstrual type of endometrium depends upon the primary action of the estrus-inducing factor (theelin) with resultant endometrial proliferation, followed by the secondary action of the corpus luteum hormone. The latter causes the edematous thickening of the stroma with the typical convoluted glands. Potent extracts of the corpus luteum have been prepared by Corner and Allen,[14] and Hisaw and Leonard.[15] Because of the scarcity of material, corpus luteum extracts of proved potency are not yet available for clinical trial. The luteal hormone has not yet been conclusively demonstrated in blood or urine. Kelly and Florence[16] have reported its presence in the blood of pregnant women as demonstrated by the suppression of estrus in guinea pigs. They failed, however, to take into account the probable cause, which was the luteinizing action of the anterior pituitary factor probably present in the blood.

THE DOMINANT SEX FACTOR: THE PITUITARY

Immature white mice and rats given subcutaneous anterior pituitary transplants develop premature sexual characters and rapid graafian follicle growth with corpora lutea formation, as was demonstrated by Smith[17] and Aschheim and Zondek.[18] These experiments were the first striking proof of the dominant role of the pituitary in the sexual cycle. Later Zondek and Aschheim discovered that an anterior pituitary-like, gonadotropic substance occurs in pregnancy urine which causes similar changes in experimental animals.

Two important questions have arisen in the course of study of the gonadotropic pituitary factor and the urinary principle with similar action, viz.: (1) Are there two anterior pituitary principles, one follicle-stimulating, one luteinizing (prolans A and B of Zondek)? (2) Is the urinary principle identical with the pituitary gonadotropic hormone?

The evidence at present seems to indicate

that any substance causing follicle stimulation can also cause luteinization and that there are not two separate prolans as Zondek suggests. The biologic activity of the urinary principle varies in certain important features from that of the pituitary extract itself. Evans has suggested that it may be an activator of the pituitary.

The cyclic changes in the ovary with the resultant elaboration of the two ovarian hormones and the consequent endometrial changes producing menstruation depend upon the activity of the anterior hypophysis.

THYROID DYSFUNCTION

The practitioner has become familiar with the use of thyroid extract in menstrual disturbances. Amenorrhea in hypothyroid patients is common and usually responds to thyroid therapy. The menorrhagia seen at puberty and in young girls is frequently associated with a low basal metabolic rate and is amenable to treatment. Hyperthyroidism with amenorrhea, hypomenorrhea or oligomenorrhea frequently shows a return of the menstrual function to normal when the metabolism is controlled with iodine or operation. There is thus a third incretory gland to be reckoned with in the study of functional menstrual disorders.

SUPRARENAL DISEASE

A fourth gland, the suprarenal, is definitely a factor in sexual function but the manner of its operation is as yet not clear. Precocious sexual development may result in the presence of a suprarenal neoplasm. Cortical suprarenal tumors in adult women may result in virilism, hirsutism and amenorrhea. In the syndrome of pituitary basophilism of Cushing[19] adrenal tumors as well as basophile pituitary adenomata are frequently found. The relation of these tumors to the genital dystrophy, painful adiposity, hypertension, osteoporosis and hirsutism occurring in these patients is obscure. Fortunately the suprarenal must be but rarely considered in the treatment of functional sexual disturbances.

The foregoing brief review shows that there is a considerable body of knowledge to draw upon in the endocrine diagnosis and therapy of gynecological conditions. What practical use can be made of this knowledge?

PITUITARY AND OVARIAN THERAPY

The biologic assay of the amount of estrin and of the anterior pituitary-like principle of the urine is proving useful in diagnosis and to determine treatment.[11, 12] In the week just preceding normal menstruation estrin (theelin) is present, but the pituitary or pituitary-like factor (prolan) is absent. The presence of estrin in normal amounts demonstrates that the pituitary is functioning normally. When the estrin level is low in the absence of known organic ovarian damage, the gonadotropic pituitary principle is presumably deficient. Such patients may have absent or diminished menstrual bleeding, sexual underdevelopment and secondary psychic disturbances. Menstruation has been reestablished in patients of this type with injections of the anterior pituitary-like principle of pregnancy urine.

Patients with menorrhagia or metrorrhagia frequently have excess amounts of estrin. In the absence of a clinically available corpus luteum hormone the anterior pituitary-like principle has been used in the treatment of functional uterine bleeding. Large doses are indicated, since luteinization is the effect desired. Control of excessive menstrual bleeding has been reported by numerous observers and this method is especially advocated by Novak.[20]

Theelin is not indicated in amenorrheas, unless it be employed very carefully in conjunction with an ovary-stimulating principle. Immature animals given theelin show consequent ovarian damage.[21] Young girls with poor sexual development and deficient menstruation receiving theelin have become completely amenorrheic.[11] Meyer, Leonard, Hisaw and Martin[22] found that theelin caused a diminution in the gonad-stimulating properties of the anterior pituitary in castrated male and female rats. It would thus seem possible to inhibit further an underactive pituitary in such cases.

After the spontaneous or artificially induced menopause theelin therapy is indicated. In the blood and urine of such patients large quantities of prolan is found and theelin is usually absent. Werner and Collier[23] established vaginal bleeding in five castrated women with theelin injections, with development of the breasts and restoration of the genital tract to a condition approximating normal. Recently Werner, Johns and co-workers[24] have reported success in the treatment of involutional melancholia with theelin. From what we have learned of the mechanism of menstruation we must conclude that any bleeding which occurs is from an interval type and not from true premenstrual endometrium. However, the relief of the distressing vasomotor and nervous symptoms of the menopause can be expected in many cases.

DIAGNOSIS OF PREGNANCY, MOLE AND CHORIO-EPITHELIOMA

The most widely known result of the newer physiologic and endocrine knowledge in gynecology is the diagnosis of pregnancy by the detection of the large amount of prolan in the urine or blood. The Aschheim-Zondek test and its Friedman modification have come into quite general use as it has become evident that this is a highly reliable method by which diagnosis can be made early. Excessive amounts of prolan also occur in the presence of chorio-epithelioma and hydatidiform mole. Positive tests for prolan after expulsion of a mole suggest the retention of tissue. The success of treatment can be judged by repeated estimations of the blood or urinary prolan.

Although gonorrheal vaginitis in children has been treated successfully with various estrin-containing substances, considerable caution must be urged in view of the known possible deleterious effects upon ovaries and pituitary.

Numerous glandular extracts have been used in the treatment of gynecological conditions for many years. Practically all of the older ovarian and pituitary preparations have been proved to be totally or practically inert. When we recollect the dependence formerly placed upon them by many leaders in the profession we must be impressed with the necessity for caution in interpreting our own results, even with biologically active extracts. Nevertheless definite progress is being made and a rational basis for treatment of functional gynecologic disorders is being established.

SUMMARY

1. Endocrine knowledge affecting the study and practice of gynecology is accumulating rapidly and is of great importance.

2. Two ovarian hormones, an estrus-inducing and a luteal principle, have been isolated. The first is concerned chiefly with the growth and nutrition of the sexual apparatus. The second is concerned with the implantation and preservation of the fertilized ovum.

3. The anterior hypophysis governs the sexual cycle and the activity of the ovaries.

4. Disturbances of thyroid function must be considered frequently in functional menstrual disorders.

5. The suprarenal glands are an interesting but less frequently involved part of the incretory group affecting sex.

6. Biologic assay of the hormones in blood and urine is proving useful in diagnosis and treatment.

7. Caution in the use of hormones and in interpretation of results is necessary.

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SYNDROME OF HYPERTONIC AND ATONIC COLOPATHY

Fred H. Kruse, San Francisco (Journal A. M. A., Nov. 3, 1934), states that a critical analysis of chronic disorders of the intestine leads to a recognition of inflammatory states with lesions of the mucous membrane, properly called colitis, on the one hand, and, on the other, of disturbances related to the form and function of the intestine.

TREATMENT OF THE UNDERPRIVILEGED DIABETIC

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The underprivileged diabetic presents a problem in treatment that has been a stumbling block for the entire medical profession. The solution of the problem must be worked out by the general practitioner and it is high time that he assumes his proper responsibility. We can no longer treat these individuals by handing them a diet list made up of "don'ts" and things to be omitted from their diet.

Hospitalization is not the answer to this question although many seem to think it is and are still attempting to hospitalize all diabetics. A few of the reasons offered are that hospitalization is necessary because frequent blood sugars must be made, the tolerance must be determined, daily insulin dosage arrived at, the daily blood sugar curve charted, the time, number and size of insulin dosage in twenty-four hours determined, the basal caloric requirement and optimum diet arrived at and last, but not least, the education of the patient concerning his diet, insulin, etc.

This all sounds very fine and does not look bad in print, but how does it work out for the patient? Let us consider the patient first. This individual, the underprivileged diabetic, belongs to that group furnishing by far the most sufferers from this disease. He has no bank account, frequently limited mental capacity and nearly always a meager education. What happens to such individuals when sugar is found on too frequent occasions in their urine?

One of two things usually happens. If his medical adviser has the "don't" complex he is advised as follows: Don't eat sugar; don't eat candy; don't eat white bread; don't eat starchy food, and best of all don't eat much of anything. His physician, however, may wish to create a more scientific impression than this. If so, he tenders the patient a dignified, somewhat extensive, neatly typewritten diet list. The patient is satisfied for the time and better, he is filled with the proper awe inspiring respect for his scientific doctor.

On his return home he proudly exhibits this scientific treatise to other members of the family and perhaps a few of the neighbors as well. Their interest is aroused at once and the contents of this formidable document are avidly read by all. The "don'ts" again seem to have the field although there may be a scattering of "do nots." At any rate they all agree that a long, hard and hungry fast is ahead for the proud possessor of that paper. Perhaps it would be better to pass on from this atmosphere of gloom and consider the second of the two alternatives.

The patient is told by this medical adviser that he must enter the hospital for a few days and undergo observation and treatment. The patient being afflicted not only physically but financially it is necessary to call on the customary social agency for aid.

He is finally admitted to the hospital where he undergoes intensive observation and treatment. His tolerance is determined, blood sugar curve platted, insulin requirement for twenty-four hours arrived at, and he is rendered sugar free. He is now ready to begin his education in dietetics. A dietitian lectures to him on different kinds of food and attempts to show him how to weigh food. He appears to be interested in all this at first and thinks maybe he will buy a pair of scales when he gets out of the hospital.

On leaving the hospital he has a feeling of security for does he not possess that impressive diet list? He is going to follow that list and get a pair of scales as soon as he finds a good job. He will guess at the weight for a few days but will soon have the scales and go at it right. As the days roll by and the rent and gas bills come due the vision of scales, carbohydrates, fats and proteins becomes a faint memory. Finally he is back at the hospital for observation and treatment. His disease has progressed and he is in much worse condition than at his first entrance.

For the second time gloom enters the picture and we must look for another remedy. Let us consider the patient again. Can we teach such an individual to weigh his food and depend on him to do it? The answer is yes and no. A few of these individuals may be taught to weigh food properly and accurately, but they will not take the time to do so when they return home.

We have always been told that the diabetic patient must weigh his food if he is to receive treatment in the ideal way. This statement may or may not be true. Granted that it is true, should treatment be withheld from the underprivileged merely because it is not ideal? The physician today is forced to treat many disease conditions under circumstances that are not ideal and yet as often as not a cure is effected or at least relief given.

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This problem of handling these cases has been attracting the attention of many physicians throughout the country so it is not strange that we are faced with the problem in our own city. Prior to February, 1932, our social service agency provided for no diabetic outpatient department. These patients were sent into the hospital where they were rendered sugar free if possible and given dietetic instructions while there. They would be sent back to the hospital from time to time usually in worse condition than before.

It was finally decided that an outpatient department in diabetes must be established. Having learned from past experience that these individuals could not or would not use scales properly it was decided to make use of standard measures. The United States Department of Agriculture has for some time published standard food tables with weights and their equivalent measurements. This plan of measuring instead of weighing was adopted and has proved very satisfactory. We have learned since adopting this method that it is in use in many large outpatient departments over the country, among them Michael Reese, Cook County, Peter Brent Brigham, Cincinnati General, Philadelphia General, Vanderbilt Clinic, Boston City and others. That this plan is practicable and workable although perhaps not ideal, I will attempt to show. What is still more important is the plan can be carried out by any general practitioner of medicine.

In carrying out this line of treatment the patient is first weighed and measured. A careful history is taken. A voided specimen is examined for sugar and acetone. Little reliance is placed on a voided specimen and the patient is requested to bring in a twenty-four hour specimen of the urine and to begin collecting it the following morning. On the first day of admittance the patient is taught how to test for and keep a record of urinary sugar; also how to estimate a diet.

This sounds like a complicated program but in reality is a comparatively simple one and feasible to carry on without hospitalization.

Specific directions on testing for sugar are given the patient which he is made to learn by heart. The patient puts a teaspoonful of Benedict's solution in a test tube and adds eight drops of urine, then places the tube in a small pan or tin cup of boiling water for five minutes. If the urine is sugar free, the solution will remain a clear blue. If sugar is present, the color will vary from an opaque green to an orange red depending on the concentration of sugar in it.

That these tests may be of some quantitative value is shown by the fact that when it is performed according to the method described a green test means a concentration of less than 1 per cent sugar, a yellow 1 to 2 per cent, while a red test indicates a concentration of over 3 per cent sugar in the specimen of urine examined. (North American Clinics, January, 1933, "Blotner.")

Finally, the patient is given a written diet telling him what to eat for breakfast, dinner and supper, and a list of 3 and 6 per cent vegetables, 10 per cent fruits, and of various foods with their values so that he may have a reasonably wide range from which to select. The diabetic diet is much more liberal than it was and contains green vegetables, fruits, eggs, bacon, meat or fish, butter, milk, cream, cheese, olive oil, cereals and Uneeda biscuits. Occasionally, bread, potatoes and sugar is added.

The written diet sheet handed the patient is a temporary one and low in calories. It is subject to change from time to time according to the patient's progress.

The total of calories prescribed in this diet is usually the basal caloric requirement for twenty-four hours. The basal caloric requirement for twenty-four hours is determined by the charts and method of Boothly and Sandiford. This diet is used in estimating the patient's tolerance. To evaluate the severity of a case of diabetes it is necessary to have exact knowledge of the intake of glucose forming food; otherwise, blood sugar and glucose excretion mean next to nothing. It is helpful to adjust the diet for the observation period in this way so that mild cases will be sugar free and the more severe cases will excrete sugar in amounts proportionate to their severity. Patients not in severe acidosis at the time of their admission to the clinic are placed at once on this diet. If sugar disappears the case is one that may be controlled without insulin. If sugar persists after four or five days the amount contained in the twenty-four hour urine will serve as a guide to the initial dose of insulin. One unit of insulin is given for each two grams of glucose found present in the urine. The total is usually divided in three equal doses and given subcutaneously one half hour before meals.

In order to clarify some things already mentioned and to better illustrate the method of therapy used, a follow through of one case will be given.

REPORT OF CASE

Mrs. B. K., white, housewife, aged 57, height 5 feet, 2 inches, weight 153 lbs., general appearance good, came in complaining of backache, painful and frequent urination, intense itching and redness of external genitals.

Past History.—Sugar was first discovered in the urine in 1928 when she was in the hospital to be operated on for gallbladder trouble. She was given a diet to be followed after her return home but paid little attention to it as she says she felt all right and had no symptoms. Her greatest weight was 175 lbs. at the time of onset in 1928. She has therefore lost 22 lbs. since that date. A few months after leaving the hospital she noticed she was much more nervous than formerly, being apprehensive and restless. This nervousness came on rather insidiously and progressed slowly but definitely. Two years ago she began having headaches two or three times a week; these headaches have persisted to date. About this time she also noticed frequency and some burning on urination. This latter condition gradually became much worse and was accompanied by intense itching of external genitals.

This woman thought she had kidney trouble because of her frequency. She came to the general clinic for treatment. Her urine was found to be loaded with sugar and she was referred to the diabetic clinic for further observation and treatment.

Family History.—This is interesting and somewhat unusual. Her father died of kidney trouble, aged 62. She was unable to give details as to symptoms or duration of his illness. Her mother suffered from diabetes and died of this disease at the age of 67.

She has two brothers both living and well and two sisters one of whom has been a diabetic for several years.

Physical Examination.—Patient is a woman a little past middle life, of good general appearance but somewhat overweight. A voided specimen of her urine shows more than 3 per cent sugar. Her blood pressure was 130/80 but there was moderate thickening of her superficial arteries. The heart is moderately enlarged. No murmurs or arrythmia present. Sounds of normal volume and tone. Other findings were negative except for evidence of chronic irritation around vaginal outlet and vulva.

Having the age, height, weight and sex of this patient, a basal caloric diet was arrived at by the method of Boothly and Sandiford, first determined by means of the table the surface area of her body in square meters. Having this data, together with age and sex, it is now easy to determine the basal caloric requirement for twenty-four hours by means of the chart.

The ideal weight for a patient of this age and sex, according to her height, would be about 144 lbs. The ideal weight for a diabetic of this same sex, age, weight and height would be 10 per cent less than this or 130 lbs, or 60 kilograms. The basal caloric diet arrived at in this case is 1360 calories for twenty-four hours. Dividing this up in carbohydrates, proteins and fat we would first consider proteins taking as many grams of protein as we have kilograms of body weight or 60 grams of protein which will render 240 calories. Subtracting this from our total calories of 1360 we have 1120 calories left to be divided into carbohydrates and fat.

To divide these remaining calories into proper proportions, we may use 80 or 90 grams of carbohydrates, the fat being cut a little low in order to reduce the patient's weight. Arbitrarily, we fixed 82 as our number of grams of carbohydrate. Multiplying this by 4 we have the number of calories carbohydrate, or 328. Subtracting this from 1120 calories we have 792 calories of fat; divided by 9 we have 88 grams of fat.

The diet now reads: Carbohydrates, 82; protein, 60; fat, 88; total calories, 1360; total glucose, 126 grams.

On this diet we should be able to reduce the patient's weight and render her sugar free unless her tolerance is very poor. In such case insulin will be administered, the dosage depending on the amount of glucose she is running in the twenty-four hour test. Most authorities reckon that one unit of insulin will enable a severe case to utilize approximately 2 grams of glucose and a mild case somewhat more. Therefore, the number of grams of glucose contained in a twenty-four hour specimen divided by two gives the number of units of insulin required for twenty-four hours.

Blood sugars are made on all patients coming in to the clinic. The patient is instructed to return the next morning and to come without breakfast. The blood sugar is lowest in the morning before breakfast. The blood sugars are an aid in determining tolerance and are especially necessary in a study of thresholds. Some of our cases will have low renal thresholds. These cases will be running sugar in their urine while their blood sugar tests will be normal.

A fasting blood sugar on the case in this report showed a blood sugar of 276 mg. per 100 cc. of blood. A voided specimen of urine examined at the start of this test showed more than 3 per cent sugar. A twenty-four hour specimen showed 3 per cent sugar. After being placed on the diet previously mentioned, the patient reported back the following week for a check up.

A twenty-four hour specimen of her urine showed no sugar present. Says she is feeling much better. The dysuria is not so marked and the local irritation is gradually clearing up. She has lost 2 pounds in weight during the last week. This is desirable as she is still overweight. If she should lose weight too fast, or develop a weakness from loss of such weight, we can step up her fats without greatly increasing her glucose intake.

It may be necessary to keep this patient under observation for some time as her diabetes is of long duration and she is overweight.

407 Kirkpatrick Building.

ACNEFORM ERUPTIONS OF FACE: ETIOLOGIC IMPORTANCE OF SPECIFIC FOODS

Cleveland White, Chicago (Journal A. M. A., Oct. 27, 1934), observed a series of thirty-two cases in which there was a recurrent papular and papulopustular eruption of the body involving the usual areas in which acne vulgaris is ordinarily found. Some patients also had deep scars in these areas. These acneform eruptions have been found in these instances to be due to a specific food or foods.

DEMONSTRATION AND INTERPRETATION OF SHADOWS IN UROGRAMS

OTTO J. WILHELMI, M.D.
ST. LOUIS

It is quite natural for the general practitioner to think of calculus when he is confronted with a shadow somewhere along the urological tract. The purpose of this presentation is to demonstrate that we often meet with perplexing problems simulating calculi in the urological tract which upon more intense and meticulous examination prove to be other things.

While it is true that the average renal calculus possesses a characteristic outline and density, still statistics show that 5 per cent of all renal calculi are still not demonstrable by roentgen ray. This has been proved in cases where stones upon further examination have actually been found to exist.

Shadows in the kidney area are often most deceiving and can be caused by calcified mesenteric lymph glands, enteroliths, phlebolites and gall stones.

One can readily perceive that in any of the above instances it would be quite impossible to make an accurate diagnosis from a plain plate. Here pyelography clinches the diagnosis showing the stone to actually exist in the renal area. The exact position of a stone preoperatively is of signal importance to the surgeon.

Thorough history taking often saves embarrassment to the one who is making a urological survey; this is evidenced when one finds a large shadow resulting from previous ingestion of bismuth.

It is not unusual to see shadows in the area involving the lower third of the ureter that are not calculi; but are phlebolites or calcified extraperitoneal lymph glands. Here, again, our only means of accurate diagnosis is retrograde catheterization where the catheter contacts the stone in its passage toward the pelvis or meets with a complete block at the point where the stone has become lodged. I have in this series of cases an intramural stone which permitted the catheter to pass and it was essential to resort to stereoscopic views for an accurate diagnosis.

Small cystine and uric acid stones fail to interrupt the roentgen rays sufficiently to cast a shadow and are therefore often overlooked. Stones composed of calcium oxalate cast a denser shadow than those made up of calcium phosphate while cystine, xanthine and uric acid stones may cast no shadow at all even though they be of large size. Experiments have shown that the chemicals used as media do not interrupt the ray enough in its penetration of the body to cast a visible shadow. Shrewd roentgenologists have demonstrated the above types by taking a picture immediately after the contrast media has been drained off when frequently sufficient of the iodide will have been absorbed by the stone to cast a shadow. The exact location of the stone is of paramount importance to the operator and relieves him of much embarrassment if his diagnosis is correct preoperatively.

Right sided kidney stones cause much confusion because we so often encounter gall stones in the same area.

There are certain features, however, that should help to establish a correct diagnosis on the right side. First, a pyelogram not only shows whether or not the stone lies in the kidney but also whether it be in the pelvis, cortex or calyx. Second, biliary calculi frequently appear in clusters and have a characteristic peripheral density commonly termed "ring formation."

Stones in the ureter are usually smaller than stones in the pelvis and frequently cause delineation of the ureter when they become lodged.

Stones which occur in the pelvis or cortex of the kidney may remain for years with no renal destruction or pain as long as sufficient drainage occurs to prevent back-flow pressure. This type of stone, termed a "silent stone," is most frequently diagnosed by mere chance in roentgen ray examination.

The doctor as well as patient becomes aware of the presence of a kidney stone or fragment when it has started its descent toward the bladder. A most excruciating pain occurs on the affected side, radiating downward into the groin. Nausea, vomiting, fever and a leukocytosis soon follow with red blood cells occurring in the voided specimen. Gallbladder and appendiceal symptoms simulate ureteral colics on the right side. These severe ureteral colics for some years were commonly believed to be due to trauma of the ureteral wall caused by the calculus in its descent, but today the urologist has quite definitely proved that this pain is due to obstructions resulting in a dilated pelvis and subsequent hydronephrosis, proof of which is demonstrated by the relief afforded when it is possible to manipulate a catheter past this blocked area and drain the dilated pelvis.

A roentgen ray ureteral catheter is our best ally in rendering a differential diagnosis between stone, appendix, gallbladder and phlebolite. One should always bear in mind that occasional intramural stones occur which permit the catheter to pass without obstruction and for that

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reason are quite misleading. These stones frequently move back and forth into the lumen of the ureter, like a ball-valve affair, and thus cause blockage. Roentgen rays from an anterior-posterior and lateral position should be of assistance and then if doubt still remains it is advisable to resort to a stereoscopic view.

Shortly after the ureteral stone becomes lodged it inflames and traumatizes the ureteral mucosa due to sharp spicules on these stones. A stricture forms at this traumatized point with a dilation of the ureter above. It is also possible to get dilatation below the point of stricture as well as above which appears to be due to an inflammatory loss of tone of the ureteral wall. Thus one can readily perceive the advisability of dilating the ureter to normal calibration after the passage of a stone.

Because this shadow appears at the end of the roentgen ray catheter does not necessarily prove that the shadow be intra-ureterally placed. In order for it to be so the ureteral walls must be delineated and the injected contrast media cover in its entirety the shadow in question.

The lower third, especially the intramural position, is an exception to the rule of dilation. In these cases the ureter is more apt to become narrowed due to the increased musculature and edema of the surrounding tissues. Here the cystoscope will be a diagnostic aid and will reveal a puffed edematous orifice with marked ecchymosis of the vesical mucosa.

Most calculi are found in the lower third because they seldom remain long in the upper two thirds but migrate rather rapidly toward the bladder. As long as there is no obstruction to the urinary flow a stone may remain lodged in the lower third of the ureter for years causing few or no symptoms. Once blockage occurs symptoms and infection soon follow. One must be cautious in reading the film of a patient who has been previously injected not to misinterpret the findings. To the inexperienced the point of increased density is hailed as the abiding place of the calculus when often just the opposite is the effect.

A stone either in the pelvis or ureter causes quite a filling defect to occur in the picture because the density of the stone is much less than the media used and displaces the media in sufficient quantity to lessen its shadow. An exception to this rule is when the stone is encysted in a large sacculation of the ureter and is of such size as to affect increased density of the contrast media.

Large and irregular shadows are often seen in the bony pelvis due to calcification processes in ovarian and uterine tumors. Thus it can be seen that all shadows in the urological tract do not necessarily mean calculi, that all shadows do not lie within the ureter or kidney, and that some types of stones only under expert technic are shown at all.

University Club Building.

DISCUSSION

Dr. W. T. Elam, St. Joseph: Prior to the development of the roentgen ray and prior to the time when stones could be diagnosed by the aid of opaque injections, we had to make our diagnoses altogether by the clinical symptoms and, as Dr. Wilhelmi has said, many times we would find quite a collection of stones in the kidney pelvis that we did not know anything about; they did not encroach upon the calices, pelvis and ureteral orifice and there was no back pressure or tension pain. But sooner or later these cases become infected and there is involvement of the kidney substance and pyelitis and, if obstruction occurs causing either hydronephrosis or pyonephrosis, one has to operate. But when stones or fragments of stones start on their way through the ureter to the bladder there is pain as the doctor has well said.

One of the prominent symptoms which sometimes occurs in a case of that kind is suppression or anuria either partial or complete and that of course is a serious thing; but in the present day I am glad to say we do not have to depend on clinical symptoms alone. We can find these stones as a rule, as has been demonstrated by the excellent pictures, and can determine whether they are in the ureter, the pelvis, the calices or kidney substance. Occasionally we find a case in which there is a sandy formation in the substance of the kidney. That type of stone is not large enough to be termed calculus and is very properly called gravel. There is only one way to relieve this and that is by nephrectomy.

Personally, I have found, as the doctor says, a number of cases of stone when I was looking for something else. They seldom give trouble unless they become infected and start down through the ureter or cause back pressure or tension pain.

STUDIES ON MORPHINE ADDICTION PROBLEM

Charles W. Edmunds, Nathan B. Eddy, Ann Arbor, Mich., and Lyndon F. Small, Charlottesville, Va. (Journal A. M. A., Nov. 10, 1934), point out that the agreement at the Geneva Convention of 1931 makes it theoretically, and to a large extent practically, possible to control the manufacture of all drugs capable of producing addiction and to trace them through all legitimate channels to their ultimate destination. The decision of the government to establish a federal hospital where persons suffering from addiction may go for treatment is another matter of great interest in this country. This hospital, which is located at Lexington, Ky., is now under construction and will probably be opened in the early months of 1935. A further step in the solution of the addiction problem as it is being studied in this country is to be found in the cooperative research that is being carried on under the National Research Council in the Universities of Virginia and Michigan in conjunction with various branches of the government service. The general plan of the present search for a morphine substitute has been to make an accurate study of morphine itself. The plan underlying the research has been an endeavor to find some drug or drugs that may possess some of the valuable medicinal properties of morphine but do not lead to addiction. Notable progress has been made in the correlation of chemical structure to physiologic activity as applied to the morphine series and in the development of morphine-like effects in comparatively simple derivatives of phenanthrene.

PELVIC MALIGNANCY WITH ASCITES AND ITS DIAGNOSIS

REPORT OF CASE

EUGENE B. ROBICHAUX, M.D.
AND
Y. D. CRAVEN, M.D.
EXCELSIOR SPRINGS, MO.

Pelvic malignancies in the female are no longer of sufficient rarity to warrant a paper ordinarily, but certain interesting phases of this case furnish sufficient reason for this one. It is our purpose to present this case with the differential diagnosis.

CASE REPORT

This patient (N. S.) came under our observation September 1, 1933. Female, aged 53, single, residing on a farm. There are three chief complaints: (1) A gradual enlargement of the abdomen, (2) gastric distress and (3) uterine bleeding intermittently for the last year and a half. She passed the menopause without difficulty at the age of 49. About one and one half years ago spotting was the first symptom which arrested attention and has continued until the present time. In the early spring of 1933 gastric symptoms of a rather vague nature appeared in the form of qualitative and quantitative dyspepsia. Says all foods "soured on her stomach" and was but partially relieved by alkaline therapy. Soon there occurred a gradual and progressive enlargement of the abdomen. Appetite is poor, bowels are constipated but the stools reveal no evidence of blood. There are no genito-urinary symptoms and dyspnea is present. During the last several months she has been treated for indigestion. On September 2, 1933, one of us (Y. D. C.) did a parencentesis removing about 12,000 cc. of straw colored fluid.

Family History.—Father died of Bright's disease; mother died of senility; one brother died of tuberculosis.

Menstrual History.—First menses at 14 years of age; always regular; no pregnancies; menopause at 49 years of age.

Physical Examination.—On September 7, 1933, temperature 98.6, pulse 95, respirations 20; loss of 42 pounds in weight (180-138); pallor but no jaundice. An expression of anxiety is manifest. The breath is ammonical. Heart and lungs are negative; blood pressure 100/70. Liver is slightly enlarged but not nodular and the splenic area is tender. The entire abdomen is uniformly large and slightly tender. Internal examination reveals a nulliparous introitus, tenderness in both adnexa particularly in the left, and the uterus is pulled to the left with the cervix pointing to the right. No enlargement of the uterus is apparent. The cervix is normal.

The tentative diagnoses made upon history and physical findings were:

1. Carcinoma of (a) left ovary or (b) body of the uterus with peritoneal metastasis. 2. Carcinoma of the stomach with metastasis. 3. Tuberculous peritonitis. 4. Chronic leukemia. 5. Malignancy of left half of the colon. 6. Cirrhosis of the liver.

Supplementary Examinations.—The hemoglobin was 75 per cent (lietz). A differential blood count was 80 per cent neutrophils and 20 per cent lymphocytes with no evidence of pathological cells.

A gastro-intestinal series elicited a normal stomach and an old ulcer of the duodenum. Otherwise negative.

Heart and lungs were negative to physical and fluoroscopic examinations.

DISCUSSION

1. The blood picture eliminates leukemia at once.

2. The presence of a normal chest helped to eliminate tuberculous peritonitis from the picture. It must of course be borne in mind that peritonitis might still be the result of a primary acid-fast infection in the pelvis. We shall discuss this phase subsequently.

3. The finding of a perfectly normal stomach rules out the consideration of carcinoma of the stomach. Duodenal ulcer with its rare carcinomatous complication we agreed could not be considered as playing an important role in the etiology of her more serious symptoms. The remainder of the roentgenological study of gastro-intestinal tract revealing no evidence of disease removed from consideration the question of malignancy of the colon.

4. Portal cirrhosis was not seriously considered because of its rarity in the female; and to those of us who believe that alcohol plays an important role in its causation that history of alcoholism is missing in this case to justify the conclusion of cirrhosis.

At this point there are only two possibilities remaining from which to choose the final diagnosis, viz.: (1) Pelvic malignancy with metastasis, or (2) tuberculous peritonitis secondary to pelvic acid-fast infection.

The further development of our problem led us next to a study of the fluid in the abdomen. We wish particularly to direct your attention to this procedure. It is not new but has come into greater use more recently. It is applicable any time one is dealing with free fluid in a closed cavity, whether in the plueral cavity or in the abdomen. There are two essential features for the success of this examination, viz.: (1) Collection of the fluid under absolutely sterile conditions, and (2) the examination must be carried out by a competent pathologist.

Withdraw fluid by parencentesis (it is better to have at least 2000 cc.), place in a small caliber container having considerable depth; close and place in a refrigerator. Allow to remain for a period of from 24 to 48 hours. Decant the supernatant fluid. Centrifugalize the remaining sediment until all fluid is separated from it. Decant the remaining fluid. With this sediment make smears and paraffin sections and examine the same as tissue. A study of the cells and bacteria present often leads to a more positive diagnosis. In another case we proved the value of this

Read before the Clay County Medical Society, Feb. 27, 1934.

same procedure. It was a case of primary bronchogenic carcinoma which we will report in a subsequent paper. In the case we now report the procedure proved of great service. The sediment was sent to Dr. Frank J. Hall of Kansas City, Missouri, whose report follows:

REPORT OF PATHOLOGY

Smears from the peritoneal exudate show red blood cells, lymphocytes and a predominating large mucus-containing epithelial cells with eccentric nucleus. These cells are most likely derived from mucus-forming carcinoma of the ovary, but similar cells can be derived from the Krukenberg's type of bilateral carcinoma secondary in the ovary, derived usually from gastric cancer which may be quiescent. At all events the process is a malignant one especially if allowed to remain.

The absence of tubercle bacilli and the finding of malignant cells in the sediment established the diagnosis of a malignancy in the pelvis.

A subtotal hysterectomy was done October 16, 1933, by Dr. Eugene Hamilton of Kansas City, Missouri. In discussing the findings at the operation Dr. Hamilton said: "In the left adnexus there was found a large, cystic, cauliflower type mass which was the left ovary. The body of the uterus was not enlarged and the tube appeared normal. Section of the uterus revealed the presence of a polyp. A subtotal hysterectomy was done with a thorough coning out of the cervix."

Dr. E. T. Johnson, pathologist of St. Joseph's Hospital of Kansas City was kind enough to furnish us with the surgical pathology of this case which we quote:

SURGICAL PATHOLOGY

Gross.—Material consists of a uterine mass, amputated above the cervix. Both tubes are attached. There is also a large cystic ovarian mass the capsule of which has been torn and some of the contents have been liberated. For the most part the external surface is relatively smooth. In a few places it shows a somewhat soft, pinkish-white, mushy, yellowish-red tumor material. There are also several large loose masses of the same type of tumor which were removed from the cyst during operation. The largest of these masses measures 5 by 7 by 13 cm.; the entire ovarian tumor mass weighs 340 grams. In some areas it is pinkish-white, resembling fish meat; in other areas it is quite soft, cellular and friable. The uterine tubes grossly show nothing abnormal. The amputated uterine mass measures 2.5 by 5 by 6 cm. From the cervical end of the uterus protrudes a small amount of soft neoplastic tissue. There are several subserous fibromyomata in the uterine wall, the largest measuring 2 cm. in diameter. Uterine wall ranges from 1 to 1.5 cm. in thickness, and the uterine cavity is almost completely filled with a soft pinkish-white tumor growth which apparently originates from the fundal end of the uterus, suggesting a malignant transformation of an endometrial polyp. Sections through this area show definite invasion of the subendometrial zone. Grossly we are unable to ascertain whether we are dealing with two primary malignancies; one, in the uterus, the other in the ovary.

Histopathology.—Sections of the uterus, including endometrium and myometrium, show very definite malignant hyperplasia of the endometrial epithelium. The tumor cells show a high degree of differentiation in which the glandular architecture of the endometrium, in most instances, is well preserved. Here and there are large irregular glandular structures invading the underlying myometrium. There are several areas in which small groups of tumor cells show definite metaplasia, appearing as very small islands of squamous-like epithelium.

Sections taken from the cervical end of the uterus also show very definite tumor invasion, and undoubtedly the cervical stump left behind would also show, to a certain degree, the same type of malignancy.

Sections of the ovary (ovarian tumor) show histology quite similar to that in the uterus. Many of the tumor cells are arranged in large, elongated acinar or glandular structures, but there are also areas that show a definite papillary architecture in which the tumor cells can be seen growing from papillary stroma stalks.

Sections of the wall of the ovarian cyst also show tumor invasion, tumor cells being present on the inner surface of the wall, in the wall and on the peritoneal or external surface of the cyst wall.

Histology in the ovary, as well as that of the uterus, shows essentially adenocarcinoma, and it is quite difficult to exclude the ovarian tumor as secondary to the primary tumor of the uterus. We feel quite certain that we are dealing with a primary carcinoma of the uterus; but, as regards the ovarian tumor being primary or secondary to the uterine tumor we are still in doubt. Should we encounter the ovarian tumor alone we would have no hesitation in calling it a primary tumor of the ovary. In my opinion, it would be rather difficult to disprove the theory that the ovarian tumor was primary, but we feel that the conservative attitude in this instance is to consider it secondary to the uterine carcinoma. There were no tumor implantations in the uterine tubes.

Diagnosis.—(1) Primary adenocarcinoma of the uterus, probably originating from the large endometrial polyp. (2) Secondary adenocarcinoma of the left ovary. (3) Subserous fibromyomata of the uterus.

Dr. Hall stated "that unquestionably the ovarian tumor was secondary to the uterine malignant polyp."

The patient has made an uneventful recovery thus far; has received a course of radium and roentgen ray therapy. It will be interesting to know the end results of this case.

The subjective symptoms presented in this case point to the primary disturbance being one of the gastro-intestinal tract. After physical examination the primary site of the disease remained in question. As a result of the study of the ascitic fluid the involvement of the ovary was apparent; and with due consideration given the essentially negative roentgenological findings related to the intestinal tract, a preoperative diagnosis of primary pelvic malignancy was justifiable.

It was only by virtue of this cavity fluid

examination that tuberculosis of the genital organs, with a secondary invasion of the peritoneum producing tuberculous peritonitis with ascites, could be excluded preoperatively.

SUMMARY

A case of pelvic malignancy in the female is reported having an interesting differential diagnosis. Attention is called to a relatively simple method of examination of pleural and ascitic fluids to determine preoperatively the nature of the underlying pathology.

Note: This patient was observed in June, 1934, eight months after operation and was found to be enjoying excellent health. Had experienced a gain of twenty pounds in weight as well as a remarkable gain in strength. There has been no recurrence in the ascites. The abdominal tenderness has diminished materially.

SPECIAL ARTICLE

CANCER SURVEY OF MISSOURI

FRANK LESLIE RECTOR, M.D.
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NEW YORK, NEW YORK

Cancer patients are being admitted to hospitals in late stages of the disease in the majority of cases. This is emphasized by the high percentage of deaths among these patients compared to deaths from all admissions. In the hospitals reporting in this survey 23.3 per cent of cancer patients died in the hospital while deaths from all admissions were but 6.8 per cent. Similar figures for the St. Louis survey were 22 per cent cancer deaths and 6.6 per cent for all deaths; for the present survey, St. Louis hospitals showed 20 per cent cancer deaths and 7.1 for all deaths. In this connection it is interesting to note that but 16.6 per cent of the cancer deaths in Missouri in 1932 took place in hospitals.

Table 15* gives detailed information on admissions, deaths and autopsies reported by the hospitals of Missouri in this survey. This table indicates that on the basis of three living cases for each death, not more than 24 per cent of cancer patients in Missouri in 1932 received hospital care. Of course cancer patients are seen in smaller hospitals not included in this survey but their number is so few that it would not materially affect the total number of hospital patients recorded herein.

Survey made by the American Society for the Control of Cancer at the request of the Missouri State Medical Association upon recommendation of the Committee on Cancer.

This is the third installment of the Survey. It will be continued through several issues because of its length.

* See page 472.

CANCER TREATMENT FACILITIES IN MISSOURI

Hospitals.—Of the forty-nine hospitals reported on in this survey, five are not approved and two are conditionally approved by the American College of Surgeons.

But one hospital in Missouri, Barnard Free Skin and Cancer Hospital, St. Louis, is devoted exclusively to cancer and allied diseases. All general hospitals of the state accept cancer patients although one or two prefer not to treat such patients because of lack of facilities except surgery. Many of the smaller institutions see but few cancer patients annually and the only facilities available for cancer therapy in many of these hospitals are surgical in character.

The hospitals contributing to this survey are located in twenty-two counties. This leaves ninety-three counties in Missouri without hospitals of twenty-five beds or more, although in seventeen of these counties there are hospitals with a capacity of six to twenty beds each. Approximately 40 per cent of the population resides in these ninety-three counties, 25.2 per cent of the cancer deaths in 1932 were reported from them, and on the basis of 1930 distribution of physicians, as noted in table 14, 25 per cent of the physicians of the state live in them.

From the distribution of hospitals and from the information in table 16 relative to facilities for diagnosis and treatment of malignant disease, it is seen that the development of special tumor services must be confined to a few centers in the state where facilities and experienced personnel already exist.

Information as to facilities for diagnosis and treatment of cancer in hospitals reporting in this survey has been summarized in table 16.*

Roentgen Ray Equipment.—Fifteen hospitals in Missouri are equipped with roentgen ray apparatus of 200,000 volts or more, the voltage considered essential by the American College of Surgeons for acceptable cancer therapy and also recommended by those having the most experience in the use of deep therapy for treatment of malignant disease. In some communities having no deep therapy in the hospital it is available in the offices of local physicians. In other hospitals without deep therapy, patients needing such treatments are referred to institutions where such facilities are available or to physicians with equipment and training in this form of therapy.

* See page 473.

Radium.—The following hospitals reported ownership of radium in the amounts indicated:

State Hospital No. 1, Fulton	100 milligrams
Freeman, Joplin	50 milligrams
St. John's, Joplin	60 milligrams
Menorah, Kansas City	135 milligrams
Barnard, St. Louis	160 milligrams
Barnes, St. Louis	115 milligrams
DePaul, St. Louis	100 milligrams
Jewish, St. Louis	101 milligrams
City Hospital No. 1, St. Louis	545 milligrams
St. Luke's, St. Louis	100 milligrams
Total	1466 milligrams

In the following cities the indicated amount of radium is owned privately in addition to that owned by the hospitals:

Columbia	150 milligrams
Jefferson City	50 milligrams
Joplin	50 milligrams
Kansas City	625 milligrams
Mexico	10 milligrams
St. Joseph	110 milligrams
St. Louis	675 milligrams
Springfield	103 milligrams
Total	1773 milligrams

This gives a known total of 3239 milligrams of medical radium in the state. There may be other small quantities owned by private physicians but it is believed they are not large.

City Hospital No. 1, St. Louis, has a radium emanation plant, the only one in the state.

It has been estimated by cancer authorities that two grams of radium should be available for each million of the population, or for each 1000 deaths from the disease. On this basis there should be available an additional 4500 milligrams or more of radium in Missouri.

One hundred milligrams of radium are owned by the state and housed at State Hospital No. 1, Fulton. By official action of the State Eleemosynary Board on August 1, 1933, this radium was made available for the treatment of indigent ambulatory cancer patients in Missouri. Use of the radium was placed under control of the Cancer Committee of the Missouri State Medical Association. In order to make use of this radium patients are required to submit to those in charge a sworn statement from the county court of the county in which they reside to the effect that they are unable to pay for the treatment, and an additional certified statement from a member of the Missouri State Medical Association resident in the county that the patient is in need of such treatment and is unable to pay the cost of treatment. At the time of this survey approximately fifty patients had been seen in this special clinic.

In a bond issue voted in Kansas City a few years ago, provision was made for $50,000 worth of radium for use at Kansas City General Hospital. The bonds for this purpose have not yet been issued; and under the present financial policy of the city it is not known when this fund will become available. Owing to the recent marked fall in the price of radium the amount voted would procure a supply sufficient for the needs of Kansas City General Hospital if purchased at this time.

Laboratory Facilities.—Twelve hospitals reporting in this survey are without laboratory equipment for tissue examination. Nine of these, however, send all or selected tissues to pathologists of recognized standing for examination.

Medically trained pathologists, devoting all or a major portion of their time to laboratory work, were found in Boonville, Clayton, Columbia, Jefferson City, Kansas City, St. Joseph, St. Louis and Springfield.

Autopsies.—A wide variation is noted in the number of autopsies in the hospitals reporting in this survey. The high percentage reported in Kansas City hospitals is exceptionally noteworthy. St. Luke's Hospital, Kansas City, reported more than 94 per cent autopsies, a record said to be the second highest of any hospital in the United States.

Referring to table 15, it is seen that in seven hospitals with a capacity of 410 beds, 4917 patients, of whom 87 were cancer, were cared for during 1932. There were 274 deaths among these patients not one of whom came to autopsy. Thirteen other hospitals with a bed capacity of 1096 and 16,239 patients, of whom 415 were cancer patients, had 962 deaths only 88 of whom were autopsied. In none of these thirteen hospitals did the autopsy percentage reach the minimum requirements of the American Medical Association, 15 per cent, for intern training. Combining the two groups of hospitals listed it is seen that in 1932 there were in Missouri twenty hospitals with 1506 beds and 21,156 patients, of whom 502 were cancer patients, in which occurred 1236 deaths with but 88 autopsies.

The usual excuse given for low percentage of autopsies is the inability to obtain permission of relatives. Such an excuse can hardly be considered valid when other hospitals in the state and often in the same or closely allied communities report no difficulty in obtaining a high percentage of autopsies.

In St. Louis hospitals the percentage of autopsies increased from 17.4 in 1930 to 25.5 in 1932, and the percentage of cancer autopsies increased from 25.4 to 35.6 during this same period.

Fourteen hospitals reporting in this survey have organized outpatient departments. These are located in Carthage, Clayton, Columbia, Kansas City, Kirksville and St. Louis. Several other hospitals maintain facilities for the return of ambulatory patients for observation or retreatment but do not maintain organized dispensaries for general outpatient work. In other communities visited the medical profession undertakes the care of indigent patients in their offices.

Cancer Service.—Barnard Free Skin and Cancer Hospital, St. Louis, is the only special cancer hospital in Missouri. Tumor clinics organized, at least in part, in keeping with the recommendations of the American College of Surgeons were found in State Hospital No. 1, Fulton; Menorah Hospital, Kansas City; Barnes Hospital, St. Louis; DePaul Hospital, St. Louis; City Hospital No. 1, St. Louis, and Washington University Clinics, St. Louis.

Social Service.—Thirteen hospitals contributing to this survey maintain departments in charge of trained social workers. In smaller communities and in smaller hospitals throughout the state it was said that physicians were able to keep in close touch with their cancer patients by frequent contact with the patients or with friends and relatives.

In the department of gynecology of Washington University Clinics a social service follow-up has been maintained over cancer patients since 1929. During this time fewer than 1 per cent of these patients have been lost. These patients have been contacted on the following schedule: Every six weeks for first two years; every three months for next two years; every six months for the next year, and annually thereafter.

More recently a special tumor service has been organized in the surgical department of Barnes Hospital, St. Louis, and a full-time social worker assigned to this service for following up all patients. The tumor clinic at Menorah Hospital, Kansas City, and Barnard Free Skin and Cancer Hospital, St. Louis, also have the services of a social worker.

The other Missouri hospitals found with departments of social service are: St. Louis County, Clayton; Kansas City General No. 1, Kansas City; Kansas City General No. 2, Kansas City; DePaul, St. Louis; Jewish, St. Louis; St. John's, St. Louis; City Hospital No. 1, St. Louis; City Hospital No. 2, St. Louis; St. Luke's, St. Louis, and St. Mary's Infirmary, St. Louis.

The social service department in the new Firmin Desloge Hospital, St. Louis, also serves St. Mary's Hospital and St. Mary's Infirmary.

Research.—At the time of this survey no special research problems in the field of malignant disease were found under investigation in the hospitals of Missouri. Barnard Free Skin and Cancer Hospital, St. Louis, normally has under investigation a number of research problems but owing to the reduced budget under which this hospital is now operating it has been necessary to suspend practically all work of this character.

Teaching Affiliation.—Nine hospitals in Missouri were found to be directly affiliated with medical schools for teaching purposes. These hospitals and their affiliated schools are:

Hospital	*City*	*School*
University	Columbia	University of Missouri
Alexian Brothers	St. Louis	St. Louis University
Barnes	St. Louis	Washington University
St. Anthony's	St. Louis	St. Louis University
St. John's	St. Louis	St. Louis University
City Hospital No. 1	St. Louis	St. Louis University
City Hospital No. 2	St. Louis	St. Louis University
St. Mary's Infirmary	St. Louis	St. Louis University
Firmin Desloge	St. Louis	St. Louis University

Postgraduate Teaching.—The only program of postgraduate cancer education under the auspices of a medical school is the monthly conference held by the surgical department of Barnes Hospital for the discussion of cancer in various parts of the body. The postgraduate program of the Missouri State Medical Association will be discussed later.

State Department of Health.—In the past the State Department of Health has not participated actively in any cancer program. Its contributions to this question have been confined to the collection and analysis of vital statistics relating to cancer. Recently, however, the department has effected a cooperative arrangement with the Missouri State Medical Association whereby an intensive campaign is being waged for the eradication of cancer quacks and charlatans, a large number of whom are found throughout the state. The medical practice laws of Missouri are such that it is difficult to obtain conviction of these irregular practitioners and an effort is to be made by the two organizations most concerned with the prob-

Table 15. *Bed Capacity, Patients Deaths and Autopsies in Certain Missouri Hospitals, 1932*

Hospital	City	Bed capacity		1932			Deaths					Autopsies		
		Total	Cancer	Total Number Patients	Cancer Patients	Per cent Cancer Patients	Total	Per cent all Admissions	Cancer	Per cent Cancer Admissions	Total	Per cent of all Deaths	Cancer	Per cent Cancer Deaths
Bonne Terre	Bonne Terre	30	..	367	1	.25	25	6.8	0	...	0	...	0	...
*St. Joseph's	Booneville	75	..	863	34	4.0	27	3.1	4	11.7	0	...	0	...
*St. Francis	Cape Girardeau	49	..	904	26	2.8	72	8.0	7	27.0	8	11.0	0	...
*McCune-Brooks	Carthage	38	..	649	10	1.5	43	6.6	5	50.0	5	11.6	1	20.0
*St. Louis County	Clayton	187	..	2973	129	4.3	243	8.2	7	5.4	68	28.0	4	57.0
*Boone County General	Columbia	46	..	581	25	4.3	43	7.4	5	20.0	12	28.0	4	80.0
*University	Columbia	92	..	2181	13	.6	42	2.0	3	25.0	23	55.0	2	67.0
*Levering	Hannibal	78	..	889	15	1.7	60	6.7	3	20.0	7	11.6	3	100.0
*St. Elizabeth's	Hannibal	70	10	1135	20	1.8	74	6.5	20	100.0	0	...	0	...
*Independence Sanitarium	Independence	68	..	1390	27	1.5	117	8.4	3	14.3	31	26.5	0	...
*St. Mary's	Jefferson City	100	..	1367	25	1.8	70	5.1	9	36.0	0	...	0	...
*Freeman	Joplin	90	..	1133	20	1.7	51	4.5	2	10.0	1	2.0	0	...
*St. John's	Joplin	100	5	1323	35	2.8	86	6.5	12	31.0	5	5.8	3	25.0
*Kansas City General No. 1	Kansas City	425	15	8674	95	1.1	659	7.6	46	50.0	374	56.7	30	65.0
*Kansas City General No. 2	Kansas City	250	..	3063	31	1.0	399	13.0	23	74.0	99	25.0	12	52.0
*Menorah	Kansas City	163	4	2113	78[1]	3.7	71	3.3	13	16.6	38	53.5	6	46.0
*Research	Kansas City	205	..	2628	173	6.5	148	5.6	18	10.4	88	60.0	18	100.0
*St. Joseph's	Kansas City	226	..	3353	132	3.9	212	6.3	18	13.6	157	74.0	16	90.0
*St. Luke's	Kansas City	240	..	3116	67	2.1	121	3.8	20	30.0	114	94.2	18	90.0
*St. Mary's	Kansas City	165	..	2485	82	3.3	162	6.5	16	20.0	88	54.3	10	62.5
*Trinity Lutheran	Kansas City	125	..	2024	88	4.3	96	4.7	11	12.3	51	53.1	5	44.0
Wesley	Kansas City	110	..	1005	..	...	48	4.7	..	...	3	6.3	0	...
**Pike County	Louisiana	65	..	350	5	1.4	28	8.0	0	...	0	...	0	...
*St. Francis	Maryville	75	..	625	7	1.1	37	5.9	0	...	2	5.4	0	...
Audrain	Mexico	43	..	690	..	...	49	7.0	..	...	..	...	..	...
McCormick	Moberly	40	..	436	10	2.3	17	3.9	3	30.0	1	5.8	0	...
Brandon	Poplar Bluff	40	..	313	9	2.8	20	6.4	0	...	0	...	0	...
*St. Joseph's	St. Charles	50	..	1075	22	2.0	43	4.0	3	14.0	3	7.0	0	...
*Missouri Methodist	St. Joseph	200	..	3900	172	4.4	279	7.0	23	13.4	82	29.7	9	40.0
*St. Joseph	St. Joseph	140	..	2254	97	4.3	141	6.2	24	24.7	20	14.1	2	8.3
*Alexian Brothers	St. Louis	184	..	1152	22	1.9	105	9.1	..	...	23	22.0	5	...
*Barnard Skin and Cancer	St. Louis	44	35	659	515[2]	78.0	30	4.5	26	5.0	13	43.3	8	30.0
*Barnes	St. Louis	270	..	5923	370[3]	6.2	271	4.5	51	13.8	169	62.3	24	47.0
Central	St. Louis	30	..	522	13	2.5	30	5.7	4	30.0	0	...	0	...
*Christian	St. Louis	100	12	1115	40	3.5	91	8.1	6	15.0	26	28.5	2	33.3
*DePaul	St. Louis	250	..	4642	116	2.5	188	4.0	19	16.4	60	32.0	0	...
*Evangelical Deaconess	St. Louis	150	..	3437	107	3.1	176	5.1	16	15.0	24	13.6	2	12.5
*Jewish	St. Louis	257	..	3549	168	4.7	209	5.8	34	20.0	98	47.0	23	70.0
*Lutheran	St. Louis	156	..	2488	75	3.0	161	6.4	17	22.6	33	20.2	4	25.0
*Missouri Baptist	St. Louis	459	..	4450	193	4.3	190	4.2	47	24.3	58	30.5	12	25.0
*St. Anthony's	St. Louis	250	..	3730	82	2.2	154	4.1	16	20.0	54	35.0	5	31.0
*St. John's	St Louis	300	..	3981	153	3.8	200	5.0	35	22.8	52	26.0	9	25.0
*St. Louis City No. 1	St. Louis	950	..	18661	364	1.9	1813	9.7	142	39.0	388	21.4	69	48.5
**St. Louis City No. 2	St. Louis	285	..	9717	73	.7	1074	11.0	43	60.0	178	16.5	0	...
*St. Luke's	St. Louis	186	..	2915	84	2.8	115	3.9	18	21.4	28	24.3	3	16.6
*St. Mary's Infirmary	St. Louis	135	..	1748	66	3.7	87	5.0	14	21.2	46	52.8	8	57.1
*Burge	Springfield	88	..	632	10	1.5	44	6.9	3	33.0	4	9.0	0	...
*St. John's	Springfield	100	..	1571	54	3.4	75	4.7	2	3.7	18	24.0	1	50.0
*Springfield	Springfield	88	..	1873	56	3.0	144	7.6	7	12.5	5	3.4	0	...
Total		7867	81	126,624	3009	2.4	8640	6.8	698	23.3	2557	29.6	318	45.5

* Approved by American College of Surgeons.
** Provisionally approved by American College of Surgeons.
[1] 14 additional cancer patients seen in outpatient department.
[2] 186 additional cancer patients seen in outpatient department.
[3] 120 additional cancer patients seen in outpatient department. (Washington University Clinics.)

Table 16. *Cancer Treatment Facilities in Certain Missouri Hospitals, 1933*

Hospital	City	Bed Capacity	Deep Therapy in kv.	Mg. Radium Owned by Hospital	Mg. Radium Owned by Physician	Laboratory: Permanent Tissue Sections	Laboratory: Frozen Sections	Pathologist: Physician	Pathologist: Full or Part Time	Out Patient Department	Teaching Affiliation	Social Service Department	Organized Tumor Service
Bonne Terre	Bonne Terre	30	No	No	No	No[1]	No	No	No	No	No	No	No
*St. Joseph's	Boonville	75	No[2]	No	No	Yes	Yes	Yes	Part	No	No	No	No
*St. Francis	Cape Girardeau	49	No	No	No	No[3]	No	No	No	No	No	No	No
*McCune-Brooks	Carthage	38	No	No	No	No[8]	Yes	No	No	No	No	No	No
*St. Louis County	Clayton	187	No	No	No	Yes	Yes	Yes	Part	Yes	No	Yes	No
*Boone County General	Columbia	46	No	No	150[4]	Yes	Yes	Yes	Part	Yes	No	No	No
*University	Columbia	92	No	No	150[4]	Yes	Yes	Yes	Part	Yes	Yes	No	No
*Levering	Hannibal	78	No	No	No	No[5]	No	No	No	No	No	No	No
*St. Elizabeth's	Hannibal	70	No	No	No	No[5]	No	No	No	No	No	No	No
*Independence Sanitarium	Independence	68	No	No	No	Yes	Yes	Yes	Part	No	No	No	No
*St. Mary's	Jefferson City	100	No[5]	No	50	Yes	Yes	Yes	Full	No	No	No	No
*Freeman	Joplin	90	250	50	50	[3]	...	...	...	No	No	No	No
*St. John's	Joplin	100	200	60	..	[3]	...	...	...	No	No	No	No
*Kansas City General No. 1	Kansas City	425	240	No		Yes	Yes	Yes	Full	Yes	No	Yes	No
*Kansas City General No. 2	Kansas City	250	No	No	625 mg.	Yes	Yes	Yes	Part	Yes	No	Yes	No
*Menorah	Kansas City	163	200	135	radium	Yes	Yes	Yes	Full	No	No	Yes	Yes
*Research	Kansas City	205	250	No	privately	Yes	Yes	Yes	Full	No	No	No	No
*St. Joseph's	Kansas City	226	No	No	owned	Yes	Yes	Yes	Full	No	No	No	No
*St. Luke's	Kansas City	240	No	No	in	Yes	Yes	Yes	Full	No	No	No	No
*St. Mary's	Kansas City	165	No	No	Kansas	Yes	Yes	Yes	Part	No	No	No	No
*Trinity Lutheran	Kansas City	125	No	No	City	Yes	Yes	Yes	Part	No	No	No	No
Wesley	Kansas City	100	250	No		[3]	...	Yes	Part	No	No	No	No
Grim-Smith	Kirksville	40	No	No	No	Yes	Yes	Yes	Full	No	Yes	No	No
**Pike County	Louisiana	65	No	No	No	No[5]	No	No	No	No	No	No	No
*St. Francis	Maryville	75	No	No	No	No[7]	No	No	No	No	No	No	No
Audrain	Mexico	43	No	No	10	No[5]	No	Yes	Part	No	No	No	No
McCormick	Moberly	40	No	No	No	No[3]	No	No	No	No	No	No	No
Woodland	Moberly	50	No	No	No	No[8]	No	No	No	No	No	No	No
Brandon	Poplar Bluff	40	No	No	No	No	No	No	No	No	No	No	No
*St. Joseph's	St. Charles	50	No	No	No	Yes	Yes	Yes	Part	No	No	No	No
*Missouri Methodist	St. Joseph	200	200	No	110[4]	Yes	Yes	Yes	Part	No	No	No	No
*St. Joseph	St. Joseph	140	No	No	110[4]	No	Yes	Yes	Part	No	No	No	No
*Alexian Brothers	St. Louis	184	No	No		Yes	Yes	Yes	Part	Yes	Yes	No	No
*Barnard Skin and Cancer	St. Louis	44	210	160		Yes	Yes	Yes	Part	Yes	Yes	Yes	Yes
*Barnes	St. Louis	270	200	115		Yes	Yes	Yes	Full	Yes	Yes	Yes	Yes
Central	St. Louis	30	No	No		Yes	Yes	Yes	Part	No	No	No	No
*Christian	St. Louis	100	No	No		Yes	Yes	Yes	Part	No	No	No	No
*DePaul	St. Louis	250	270	100	675 mg.	Yes	Yes	Yes	Part	Yes	No	Yes	Yes
*Evangelical Deaconess	St. Louis	150	No	No	radium	Yes	Yes	Yes	Part	No	No	No	No
*Firmin Desloge	St. Louis	238	No	No	privately	Yes	Yes	Yes	Full	Yes	Yes	Yes	No
*Jewish	St. Louis	257	350	101	owned	Yes	Yes	Yes	Full	Yes	No	Yes	No
*Lutheran	St. Louis	156	No	No	in	Yes	Yes	Yes	Part	No	No	No	No
*Missouri Baptist	St. Louis	459	220	No	St. Louis	Yes	Yes	Yes	Full	No	No	No	No
*St. Anthony's	St. Louis	250	240	No		Yes	Yes	Yes	Part	No	Yes	No	No
*St. John's	St. Louis	300	200	No		Yes	Yes	Yes	Part	Yes	Yes	Yes	No
*St. Louis City No. 1	St. Louis	950	200	545		Yes	No	Yes	Full	Yes	Yes	Yes	Yes
**St. Louis City No. 2	St. Louis	285	[9]	[9]		Yes	No	Yes	Full	No	Yes	Yes	No
*St. Luke's	St. Louis	186	No	100		Yes	Yes	Yes	Full	Yes	No	Yes	No
*St. Mary's Infirmary	St. Louis	135	No	No		Yes	Yes	Yes	Part	Yes	Yes	Yes	No
Bothwell Memorial	Sedalia	120	No	No	No	No	No[10]	No	No	No	No	No	No
*Burge	Springfield	88	No	No	103[4]	No	Yes	Yes[11]	Part	No	No	No	No
*St. John's	Springfield	100	No	No	103[4]	No	Yes	Yes[11]	Part	No	No	No	No
*Springfield	Springfield	88	No	No	103[4]	No	Yes	Yes[11]	Part	No	No	No	No

* Approved by American College of Surgeons.
** Provisionally approved by American College of Surgeons.
[1] Tissues sent to Dr. George Ives, St. Louis.
[2] 240 kvp. deep therapy available privately in Boonville.
[3] Tissues sent to Duncan Laboratory, Kansas City.
[4] Hospitals use same radium privately owned.
[5] Tissues examined by Dr. M. P. Neal, Columbia.
[6] 180 kvp. roentgen ray therapy available privately in Jefferson City.
[7] Tissues sent to National Pathological Laboratories, Chicago.
[8] Tissues sent to National Pathological Laboratories, St. Louis.
[9] Uses facilities of City Hospital No. 1.
[10] Tissues sent to Lattimore Laboratory, Topeka, Kansas.
[11] Same pathologist serves all three hospitals in Springfield.

lem to secure stronger laws providing for a more adequate control over these individuals.

The health departments of Kansas City and St. Louis have no specific cancer work incorporated in their official activities.

State Medical Association.—A Committee on Cancer composed of three members was appointed by the Missouri State Medical Association in 1931. This committee has been active in stimulating members of the State Association to an added interest in the cancer problem in Missouri. It has investigated the distribution of facilities for diagnosis and treatment of this disease. As opportunity has offered addresses have been given under the committee's auspices to medical and lay audiences throughout the state.

This last year an enlarged program of professional and lay education has been undertaken by the Committee on Cancer in cooperation with the Postgraduate Committee of the State Association with the object of holding at least one cancer meeting during the year in each of the thirty-one councilor districts of the state. These meetings for the profession are devoted to cancer of the breast. Wherever possible a meeting for the laity has been arranged on the same day the scientific meeting is held. While it has not been possible to hold such meetings in every district this year it is expected that the work will be continued until such a meeting is held annually in each councilor district of the state.

Private Health Agencies.—The only private health agency in Missouri with an organized interest in the cancer problem is the Health Conservation Council of Kansas City which has a cancer committee composed of physicians specially interested in cancer. The members of this committee prepare articles for publication in the Council's *Bulletin*, give occasional radio talks on cancer and supply speakers for various groups such as nurses and social and civic clubs.

CANCER PREVENTION AND CONTROL

General Considerations.—Details of cancer facilities and service as found by this survey in Missouri have been set forth. Before discussing a program for prevention and control of cancer in Missouri it may be well to consider briefly some general problems connected with this disease.

While mortality from heart disease is far greater than from cancer it is probably true that cancer is the most lethal of all diseases and, untreated, kills practically all its victims. It never terminates in recovery as do acute and contagious diseases. Unless treated early and adequately chances of a fatal termination are almost 100 per cent. Authentic reports of spontaneous cessation of malignant growth are so few as to be medical curiosities and, according to Dr. James Ewing,* the number of authentic cures of cancer by means other than surgery, roentgen ray or radium, or a combination of these is equally rare.

Deaths from cancer are increasing annually. Statisticians may debate whether this increase is relative or actual, but this question is not of so much importance to those interested in prevention and control of this disease as is the fact that more people are dying of cancer each year.

Cancer is no respecter of social or economic groups. While it falls with more economically disastrous results on those in the small income class as does all other incapacitating illness, it is found with equal frequency among the well-to-do. In this country the estimated annual loss from this disease due to death and incapacity is $800,000,000.

There is no known specific etiology although all scientific workers in the field believe that chronic or protracted irritation, mechanical, chemical or thermal, is one of the principal causative factors. There is no accepted proof that heredity plays any important part in causing this disease in humans; neither has environment any influence except in a few instances where occupation has shown a close relationship to cancer. Cancer of the bladder among dye workers, chimney sweep's cancer and tar cancer among petroleum workers have all shown a rather close relationship to materials worked with.

Studies on the incidence of cancer have shown about three living cases to each death. Such surveys have also shown approximately three living cancer patients for each licensed physician. It is also interesting to note, although without significance, that there is approximately one cancer death annually for each licensed physician in a given state.

(To be continued in the January issue.)

* Ewing, James: Causation, Diagnosis and Treatment of Cancer, Baltimore, The Williams and Wilkins Company, 1931, p. 85.

C. Malone Stroud, St. Louis (Journal A. M. A., Nov. 10, 1934), found dilaudid to be an efficient analgesic in the control of constant pain. It is more helpful in cancer than any other opiate that he has used. In order to obtain continuous relief of constant pain, the method of administration is important. The doses should be administered with sufficient frequency to permit continuous effect.

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EDITORIALS

CHIROPRACTORS AND NATUROPATHS DEFEATED

Always since the healing of the sick emerged from necromancy and witchcraft there have been hangers-on who seek all the privileges and benefits that legitimate healers of the sick enjoy but who object to preparing themselves for proper recognition of their ability to treat the sick. In modern times we have our chiropractors, our osteopaths, our naturopaths and about sixty-five other varieties of "pathies."

Recently the chiropractors and the naturopaths received a shock they little expected. We quote an editorial that describes the routing of these two cults very succinctly. We publish it because we believe that the percentage of our members (about 50 per cent), who do not read the *Journal* of the American Medical Association, should have an opportunity to read this editorial and, also, to call it to the attention of that percentage of subscribers of the *Journal* of the American Medical Association who may have overlooked this item. The editorial follows under the caption "Chiropractors and Naturopaths Defeated."

Chiropractic and naturopathy received a noteworthy setback, November 6, when the people of Arizona, California and Oregon decisively defeated at the polls measures for the aggrandizement of those cults submitted under the initiative system of legislation.

In Arizona the naturopaths wanted an independent naturopathic examining and licensing board. They wished to have naturopaths exempted from the requirements of the basic science law and authority for every licensed naturopath to exercise every right and privilege given by law to any practitioner of the healing art.

In California a schism in the chiropractors of the state sought by an initiative measure to add to chiropractic prerogatives a monopoly of the right to practice physical therapy, by providing for the issue to licensed chiropractors only of licenses to practice physical therapy, authorizing the holders "to practice obstetrics; to use, prescribe and practice prophylactic hygiene and sanitation and dietetics, including, in any form, herbs, oils and all animal and vegetable foods; and to use all systems, methods or instruments in diagnosis, including the use of roentgen rays." Under the chiropractic initiative all licensed chiropractors in the state were to constitute a public corporation, with officers elected by the members, with power to regulate chiropractic practice, to levy dues on its members and to discipline its members. The dominant group of chiropractors in the state publicly denounced the measure, saying that the chiropractic initiative measure of 1922 had vested in them all authority necessary to enable them to practice legitimate chiropractic. Another California naturopathic initiative sought to establish naturopathy by law as a distinct school of healing, with its own independent examining and licensing board. It proposed to organize all licensed naturopaths in the state into a self-governing public corporation. Naturopathy was defined by the measure as including "physiotherapy, physical therapy, phytotherapy, biochemistry, the use of antiseptics, anesthetics, applied therapeutics and prophylactic hygiene and sanitation; the science and art of diagnosis, which enables the naturopathic physician to direct, advise, prescribe, dispense or apply food, water, roots, herbs, plants, oils, lights, heat, color exercises, active and passive, manipulations, correcting vital tissue, organs or anatomical structures by manual, mechanical or electrical treatment, instruments and appliances, X-ray, or any and all other natural agencies that have been used in the past, that are now in use, or that may be used in the future, to assist nature in restoring a physiological and psychological interfunction for the purpose of restoring and maintaining a normal state of health, mentally and physically."

In Oregon, chiropractors and naturopaths already have their independent examining and licensing boards. A basic science law that went into effect Jan. 1, 1933, however, seems to have given alarm to chiropractors and naturopaths generally, and particularly to a struggling chiropractic school in the state, whose graduates, under the basic science law, were threatened with the necessity of having to show that they had been adequately instructed in anatomy, physiology, chemistry, pathology and hygiene, before an independent board, before they could appear before the chiropractic board for examination. The chiropractors of the state therefore combined with the naturopaths in proposing as an initiative measure an amendment to the state constitution that would have abolished the examinations in the basic sciences under the basic science law. The measure was so worded as to permit the governing board of the chiropractic and naturopathic bodies to enlarge the scope of practice of their adherents in such a way as to permit them to use drugs and possibly even to enter into the general practice of obstetrics and surgery.

Through the effective work of the state medical associations of Arizona, California and Oregon, and with the aid of many public spirited citizens both individually and in organizations, the people of these states were kept informed as to the dangers threatened by the proposed initiative measures. As has been mentioned, decisive defeats resulted in each state. The people of Arizona, California and Oregon are to be congratulated on maintaining their standards of medical care. Apparently the majority of the voters recognized the necessity for protection against ignorance, superstition and incompetence in medical care.

DR. ROGER WILLIAM GAY

Many men when they die leave deeds done, precedents established or work begun which those following after can carry on. Probably the greatest heritage a man may leave is a work that may be continued. Such a man was the late Dr. Roger William Gay, Ironton, and his heritage was the Arcadia Valley Hospital which other physicians and the Sisters of St. Mary have carried on.

Appreciation of Dr. Gay and of the hospital which he founded was shown on October 4 by a ceremony and the unveiling of a memorial bronze plaque in the hospital. The ceremony consisted of music, the unveiling of the bronze plaque and an address by Dr. Joseph Grindon, St. Louis. The unveiling of the plaque and the placing of a wreath was done by five small grandchildren of Dr. Gay's.

Dr. Grindon praised Dr. Gay and his work and that of the Sisters of St. Mary. Of Dr. Gay, Dr. Grindon said in part:

Most of our fellow-beings we notice no more than we do the common plants along our path. Some we gaze at for a while as we may enjoy the beauty of a cloud in the summer sky, but like the cloud they soon drift away and are forgotten. But here and there one stands out against the background of unremembered things like the mountains we can see from these windows and there remains, like them, a permanent part of our mental horizon. Such a one was Roger Gay. Handsome of feature and strong of limb, he was gifted with a rarely bright and retentive mind, one that to the last preserved the character of youth, being as wax to receive and marble to retain. He could not fail to leave his impression on those he met in proportion to their capacity to receive, for is not each of us a sum of his actions and reactions? Thus a commanding personality leaves us a little different from what he found us, becomes in a true sense a part of us, and thus lives on in our lives. Such an influence, such a personality was Dr. Gay's.

Dr. George Gay, Ironton, and Dr. Lee Petit Gay, St. Louis, are sons of Dr. Roger William Gay.

NEWS NOTES

Dr. Louis L. Tureen, Clayton, addressed the St. Louis Neuropsychiatric Society November 26 on "Varicosities of the Vein of Galen With Rupture; Case Report; Postmortem Findings."

Dr. John R. Caulk, St. Louis, will be a guest of the Southeastern Branch of the American Urological Association at Atlanta, Georgia, December 7 and 8. He will deliver an address on "Bladder Neck Obstructions in Children."

At a meeting of the medical staff of the St. Louis City Sanitarium, November 5, the following officers were elected: Dr. Norman Tobias, St. Louis, president; Dr. A. M. Tripodi, St. Louis, vice president, and Dr. William MacNamee, St. Louis, secretary.

The Trudeau Club of St. Louis met November 1 at the St. Louis Medical Society Building. The program consisted of an address on "Problems in Ocular Tuberculosis" by Dr. W. H. Luedde, St. Louis, and reports of cases with roentgen rays by Drs. J. Maher, Koch, and T. Drinnen, St. Louis.

The November Hospital Clinic of the Kansas City Southwest Clinical Society was held November 13 in St. Luke's Hospital, Kansas City, with a continuous program presented by members of the staff from 9 a. m. until noon. Eighty physicians registered during the morning, twenty-eight of whom were guests from other cities.

Drs. P. T. Bohan and J. G. Montgomery, Kansas City, were the guests of the Tri County (Kansas) Medical Society at Wellington, Kansas, November 15. Dr. Bohan spoke on "The Removal of the Normal Thyroid Gland for Intractable Heart Failure and Angina Pectoris" and "Management of Pneumonia." Dr. Montgomery discussed "The Acute Surgical Abdomen."

Three reappointments of members of the Missouri State Board of Health were announced by Governor Park on November 14. The terms will expire July 1, 1938. Dr. W. L. Brandon, Poplar Bluff, who was named last April to fill the unexpired term of the late Dr. W. A. Clark, Jefferson City, was reappointed. The other two members who were reappointed are Dr. T. H. Bourke, Kansas City, and Dr. E. Sanborn Smith, Kirksville.

The following officers have been selected for the ensuing year by the Kansas City Southwest Clinical Society: President, Dr. C. C. Nesselrode; vice president, Dr. M. B. Simpson; secretary, Dr. Ralph R. Coffey; treasurer, Dr. H. S. Valentine; director of clinics, Dr. Ira H. Lockwood; associate director of clinics, Dr. Max Goldman, and editor, Dr. Rex L. Diveley. The executive committee is composed of Drs. J. V. Bell, Rex. L. Diveley, A. Morris Ginsberg, A. C. Griffith, M. A. Hanna, M. J. Owens, E. H. Skinner and Raymond Teall.

Application blanks are now available for space in the scientific exhibit at the Atlantic City Session of the American Medical Association, June 10 to 14, 1935. All applicants must fill out the regular application form and the Committee on Scientific Exhibits requests that this be done as early as convenient. The closing date for applications is February 25, 1935. Persons desiring application blanks should address a request to the Director, Scientific Exhibits, American Medical Association, 535 North Dearborn Street, Chicago.

The St. Louis Medical Society and the Section on Medical Economics held a joint session on October 30 at the St. Louis Medical Society Building for the discussion of charity abuse. Taking part in the program were Dr. N. C. Baumann, Highland, Illinois, president of the Madison County (Illinois) Medical Society; Dr. D. D. Monroe, Edwardsville, Illinois, secretary of the Madison County Medical Society; Dr. E. H. Thies, Edwardsville, Illinois; Dr. G. C. Otrich, Belleville, Illinois, secretary of the Belleville branch of the St. Clair County (Illinois) Medical Society; Dr. W. A. Griffith, East St. Louis, representing the East St. Louis branch of the St. Clair County Medical Society; Dr. B. L. Neubeiser, St. Charles, Missouri, and Dr. H. J. Stein, St. Louis, secretary of the St. Louis County Medical Society.

The American Association for the Study of Goiter offers again this year the Van Meter Prize Award of $300 and two honorable mentions for the best essays on the subject of goiter. The essays must be based on original research work on the subject of goiter, preferably its basic cause. The prize essay or its abridgement is to be presented at the annual meeting of the association to be held at Salt Lake City, Utah, in June, 1935. Competing manuscripts should be in the hands of the corresponding secretary, Dr. W. Blair Mosser, Kane, Pennsylvania, not later than April 1, 1935.

The fifty-second annual meeting of the Wabash Railway Surgical Society convened in St. Louis November 5 and 6 with over eighty present. The program on the first day consisted of addresses on "The Importance of Hematuria in Diagnosis" by Dr. I. H. Neece, Decatur, Illinois; "Boehler Treatment of Fractures" by Dr. John R. Davis, Toledo, Ohio, and "Thyroid" by Dr. A. E. Dale, Danville, Illinois. A banquet at the Hotel Statler closed the day. On the second day addresses included "The Role of Ophthalmology and General Disease" by Dr. J. A. Flury, St. Louis; "Diverticulitis of Colon" by Dr. F. D. Gorham, St. Louis; "Leukocyte Count in Acute Appendicitis" by Dr. Dudley A. Robnett, Columbia, and "Head Injuries" by Dr. F. J. Tainter, St. Louis. Dr. F. J. Harrison, Mexico, presided at the session. Dr. A. E. Dale, Danville, Illinois, was elected president, and Dr. Dudley A. Robnett, Columbia, was elected vice president.

The Frisco System Medical Association held its thirty-third annual meeting in St. Louis October 8 and 9 with over a hundred in attendance. Dr. Dean Lewis, Baltimore, Maryland, was the guest speaker at the session and delivered an address on "Soft Part Injuries Complicating Fractures." Members of the association from St. Louis who appeared on the program and their subjects were: Dr. E. Vernon Mastin, "The Pathological Gallbladder"; Dr. R. M. Klemme, "Diagnosis and Treatment of Trigeminal Neuralgia"; Dr. A. B. Jones, "Head Injuries"; Dr. Alphonse McMahon, "The Diagnosis and Treatment of Tuberculosis"; Dr. M. L. Klinefelter, "The Early Treatment of Fractures," and Dr. C. E. Burford, "Vesicle Neck Obstruction." A dinner in the evening closed the session. Dr. Elsworth Smith, St. Louis, presided at the St. Louis

session and Dr. R. M. James, Joplin, was elected president for the ensuing year. Dr. Robert Vinyard, Springfield, is secretary.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Bilhuber-Knoll Corporation
  Dilaudid Rectal Suppositories 1/24 grain
Grisard Laboratories
  Scillonin
    Tablets Scillonin, 0.5 mg.
    Solution Scillonin
Mallinckrodt Chemical Works
  Phenobarbital Sodium
Parke, Davis & Co.
  Diphtheria Toxoid, Alum Precipitated (Refined)—P. D. & Co.
E. R. Squibb & Sons
  Sterile Ampules Procaine Hydrochloride —Squibb (Crystals) for Spinal Anesthesia, 50 mg.
  Sterile Ampules Procaine Hydrochloride —Squibb (Crystals) for Spinal Anesthesia, 100 mg.
  Sterile Ampules Procaine Hydrochloride —Squibb (Crystals) for Spinal Anesthesia, 120 mg.
  Sterile Ampules Procaine Hydrochloride —Squibb (Crystals) for Spinal Anesthesia, 150 mg.
  Sterile Ampules Procaine Hydrochloride —Squibb (Crystals) for Spinal Anesthesia, 200 mg.
Supplee-Wills-Jones Milk Co.
  Supplee B. Acidophilus Milk

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. James G. Montgomery and Dr. Donald R. Black, Kansas City, were the guests of the Nodaway County Medical Society at Maryville on September 5. Dr. Montgomery spoke on "The Treatment of Diabetes" and Dr. Black on "Surgery of the Spleen."

The Lafayette County Medical Society had as its guests at Lexington on September 25 Dr. James R. McVay, Kansas City, and Dr. Emmett P. North, St. Louis. Dr. McVay discussed "Diagnosis and Treatment of Perinephritic Abscess," and Dr. North spoke on "Analysis of Preventable Eye Diseases."

On October 12 Dr. Oscar Zinc, St. Louis, was the guest of the Marion-Ralls County Medical Society at Hannibal and presented an address on "Roentgen Ray Interpretation of the Chest."

Drs. H. H. Kramolowsky and Duff S. Allen, St. Louis, were guests of the Cole County Medical Society at their annual clinic at Jefferson City, October 30. Dr. Kramolowsky delivered two addresses, one on "Diagnosis and Treatment of Urethritis and Cystitis of Both the Male and Female"; and the other on "The Common Types of Kidney Disease Due to Infection and the Present Day Treatment of Each." Dr. Allen's subject was "The Newer Aspects of Thyroid Surgery."

The Marion-Ralls County Medical Society had as its guests at Hannibal November 2 Drs. M. Pinson Neal and Dudley A. Robnett, Columbia. Dr. Neal discussed "The Leukocyte Blood Picture in Acute Infections"; Dr. Robnett spoke on "Skin Cancers; Their Recognition and Treatment."

Dr. C. J. Hunt and Dr. W. A. Myers, Kansas City, were the guests of the Nodaway County Medical Society November 7 at Maryville. Dr. Hunt spoke on "Surgery of the Stomach" and Dr. Myers on "The Diagnosis and Treatment of Diaphragmatic Hernias."

OBITUARY

MALCOLM ANDREWS BLISS, M.D.

Dr. Malcolm Andrews Bliss was born in Warsaw, Illinois, July 2, 1863, the son of Uriah Wright Bliss and Amanda Andrews Bliss. His father, a lawyer by profession, was made superintendent of a lead mining company near Kingston Terrace, Missouri, and there Dr. Bliss spent his youth, receiving his education from a private tutor. He elected to study dentistry, graduating from the Missouri Dental School in 1884 and practiced dentistry for several years at Farmington, Missouri. Feeling that he preferred medicine to dentistry he reentered school and graduated in 1890 from the Chicago Medical College which later became a department of Northwestern University. He returned to Southeast Missouri and entered the practice of medicine at Bonne Terre.

He was married to Clementine Chilton Carter on April 29, 1891. To them three children were born, William Carter Bliss, Wyllys King Bliss and Helen Bliss. Helen died in October, 1924, and Mrs. Bliss died in March, 1927.

Dr. Bliss was active and eminent professionally. He was an ideally unselfish and charitable member of the St. Louis Medical Society of which he was a past president. He was a member of the Missouri State Medical Association, a Fellow of the American Medical Association and a member of the Publication Committee of the State Association since July, 1911. He was elected an honor member of the St. Louis Medical Society in March, 1934. He was a member of the St. Louis Neurological Society, the American Neurological So-

ciety, the American Psychiatric Association, the American Association for the Study of the Feeble-minded, the Missouri Society for Mental Hygiene of which he was virtually founder and was first president, and a member of the National Committee for Mental Hygiene. He was an honorary member of the Royal Medicopsychological Association of England. He was appointed a member of the Missouri State Board of Eleemosynary Institutions by Governor Caulfield in April, 1929, and in 1932 was presented with a medal by former Governor Caulfield for his conspicuous services in placing the state eleemosynary institutions on a high plane. He assisted in the organization of the Missouri School of Occupational Therapy. During the World War he served in a medical capacity. With all his professional duties he was an active member of the Masonic Order.

He was nominated by petition circulated at large to be elected to the constitutional convention in January, 1932, and although he was not elected he received a large number of votes. He was a member of the mayor's advisory committee at the time of his death.

Dr. Bliss was in large measure responsible for the survey of dependency and delinquency made in St. Louis at the time of the organization of the Child Guidance Clinic which demonstrated so convincingly the futility and extravagant waste of repeatedly "grinding the same grist through the mills of justice" without hope or prospect of reclamation, social recovery or social adequacy of such derelict and defective material. He zealously fostered the idea of the psychiatric, or preferably, Child Guidance Clinic, as a preventive of dependency and delinquency and as a practical mental hygiene agency. Subsequent to the demonstration period of the clinic which was financed by the Commonwealth Fund he served as director without pay and with the assistance of a number of medical friends financed the entire cost of operation of the clinic until its adoption by the city. For many years he frequently served with other neuropsychiatrists in a nonpartisan capacity, for reasons of charity, demonstration and utmost justice, as an aid to the courts in the examination of criminal cases of doubtful intellectual capacity and responsibility.

He was the moving spirit in obtaining the state surveys so ably conducted by Drs. Samuel Hamilton and Tom Haines during the administration of Governor Gardner which brought in its wake the benefits of bipartisan administration of the state hospitals in the legislative program of Governor Hyde.

Dr. Bliss was more actively studious with the progress of years. Realizing the tremendously important causative factor of food deficiency in mental diseases he conducted practical experiments at Bliss Haven and extended them to the farms and patients of the state and city insitutions. He went on extended investigative excursions to important experimental stations and medical meetings throughout America and abroad. He studied in England and France in 1913 and 1930, in England in 1927 and in Italy in 1933. He was ever mindful of his chosen profession and its mission of mercy.

Dr. Bliss was chief of staff of Mullanphy Hospital, a member of the staff of the City Sanitarium and the City Hospital since 1900, a member of the staff of DePaul Hospital, St. Luke's Hospital and the Jewish Hospital and was actively interested in the work of a number of Catholic institutions, especially the convent of the Good Shepard. He frequently said he considered the St. Louis Training School his "particular child." Dr. Bliss was lecturer from 1898 to 1915 on mental and nervous diseases at Washington University.

He read extensively, loved paintings and music and indulged much of his time in the galleries and cultural centers of America and Europe.

In the death of Dr. Bliss the people of the city and the state sustained a great loss, the medical profession in his leadership in medicolegal matters of great importance and the underprivileged group of society in his vision, charity and energetic activity in their behalf. His work, however, will live after him in the memory of his students, intimate associates and countless friends because of his successful teaching and impressive example of good citizenship.

In his home life Dr. Bliss and his family were most exemplary and will be remembered by all knowing them as congenial, hospitable and lovable. G. A. J.

RALPH WALDO HOLBROOK

Ralph Waldo Holbrook was born November 11, 1880, at Schuyler, Nebraska, his father being a practitioner of medicine in that state. Dr. Holbrook knew full well as a lad that the life of a country doctor was filled with the hardships and vicissitudes that are an inevitable part of professional life. Many a night he had heard his father's tired horse enter the driveway to the barn only to be saddled again and gone before the break of day. He knew that his father had no time that he could call his own, yet the few brief moments that they had spent together stimulated him to follow in the footsteps of his sire. The greatest compliment that a son can pay his father is to choose the same profession. It means that the father was understanding, kind, sympathetic and was cognizant of the psychology of youth.

The doctor attended the public schools of Gresham, Nebraska. In 1897 the family moved to Higginsville, Missouri, where he attended high school. From 1900 to 1902 he was a medical student in Keokuk Medical

School but received his degree of Doctor of Medicine at the Kansas City Medical School in 1904. One year after his graduation he married Mary Watkins whose family is well known in Kansas City.

The doctor practiced medicine in Kansas City continuously from 1904 until the time of his death, August 22, 1934, with the exception only of his service in the United States Navy. During this time he was stationed at the Great Lakes Naval Station as a medical officer with the rank of lieutenant commander. After his discharge from the navy he remained in the Naval Reserve Corps until his death.

Dr. Holbrook was an active man not only in his practice, which was large and successful, but in the interests of the medical profession as a whole. He held many offices both in the local society and the state. He was elected president of the Jackson County Medical Society in 1928 and was one of the most active presidents that the society ever had. His interests were almost entirely absorbed in the ethical practice of that profession. It was largely due to his efforts both locally and in the state that many of our notorious quacks and charlatans were driven from the practice of medicine. In spite of threats to his life and annoyances that would have driven a weaker man almost insane he held to his course.

With the death of Dr. Ralph Holbrook the medical profession has lost one of its strongest members and one of its finest practitioners—a man of ability, strength and resolution. We mourn his departure but he has left behind him a memory which will stimulate many of us to a better appreciation of a strong life well lived.

He leaves his wife, Mary Holbrook, and two brothers, Walter and Burr Holbrook.—From the Jackson County Medical *Journal*.

EMANUEL F. OEHLER, M.D.

Dr. Emanuel F. Oehler was born in Yorktown, Texas, September 23, 1877, the son of an Evangelical Lutheran minister. He obtained his primary education in the public schools of the Lone Star State and in the Missouri public schools, after which he entered the Pro Seminary College at Elmhurst, Illinois, for the study of theology, it being the wishes of his parents that he should become a clergyman. He attended Central Wesleyan College at Warrenton, Missouri, and there continued his theological studies for four years. He completed his preparation for the ministry in the Eden Theological Seminary at St. Louis, Missouri.

This calling, however, was never of his choice and he therefore abandoned his studies and took a position at the Deaconess Hospital where he engaged in nursing for four years.

In 1902 he took up the study of medicine at the Marion Sims College. He graduated in medicine in 1906 and immediately entered into active practice being associated with a very able surgeon. His natural surgical ability prompted him to take up surgery as a specialty which he followed until his death. His surgical connections were at the Deaconess and Missouri Baptist Hospitals. He also was physician at the Good Samaritan Home for the Aged.

His Christian training developed in him a character much to be envied. He was of a sympathetic nature, and very conscientious, which qualities made him very dear to his patients and friends.

Dr. Oehler died September 7, 1934, after eleven days of suffering, the result of a streptococcic infection contracted while operating on a patient for a similar ailment.

Dr. Oehler is survived by his widow and daughter, Miss Wanita Oehler.

His passing on is deeply felt by those who were closely associated with him as well as by his many patients.—L. W. G. in the *Bulletin* of the St. Louis Medical Society.

JAMES W. CREWDSON, M.D.

Dr. J. W. Crewdson, Louisiana, was born in Logan County, Kentucky, July 9, 1859, the son of Captain William N. and Malinda Crewdson. After attaining a primary education in the schools of his home town, Auburn, he attended Roanoke College in Virginia. After leaving that school he taught school in his home county. Later he studied medicine at the University of Louisville, Kentucky, and was graduated in the year 1880.

He began the practice of his profession in Graham, Texas, where he lived for three years, going from there to Martinsburg, Missouri, and later locating in Eolia, Missouri, where he met and was married to Miss Mildred E. Dawson. In 1892 he moved to Louisiana, Missouri, where he lived until his death, September 29, 1934, after a four month illness.

After going to Louisiana Dr. Crewdson built up a large medical practice yet found time to devote to civic and political affairs. He was elected mayor of the city for the first time in 1911 and in March, 1934, was elected for his ninth term in that office. He was closely identified with the commercial interests of the city being one of the founders of the Louisiana Building and Loan Association and continued as a director of this company until the time of his death. He was a vice president of the Bank of Louisiana, a member of the Masonic, Elks, Fraternal Order of Eagles, Modern Woodmen and Odd Fellows lodges. For many years he was the surgeon for both the Burlington and Chicago and Alton railroads at Louisiana.

He was a loyal member of the Pike County Medical Society. He was president of the Society in 1929, alternate delegate to the Annual Meeting in 1931 and delegate in 1934. He was a warm friend and supporter of the Pike County Hospital and its staff.

Dr. Crewdson was best known as the friend of the poor and unfortunate.

He is survived by two daughters. E. A. C.

MARK HUGH HUDGINGS. M.D.

Dr. M. H. Hudgings, Caruthersville, a graduate of the Missouri Medical College, 1887, died at his home May 13 after an illness of several months, aged 69 years.

Dr. Hudgings was born at Cottonwood Point, Missouri. He attended the elementary schools there and continued his education in the State Normal School at Cape Girardeau. He completed a course in pharmacy at Washington University before beginning his medical education. He returned to Cottonwood Point to begin his practice among his friends remaining there for ten years. He practiced in Cape Girardeau for five years but returned to his native county and established his practice at Caruthersville.

He early became allied with organized medicine. He served the Pemiscot County Medical Society as vice president in 1920 and as president in 1922 and 1926.

Dr. Hudgings was a hard and conscientious worker in his profession and in civic affairs never seeming to tire when he was needed. He acted as county physician and as city physician for several years. During the most of his residency in Caruthersville he was alderman from his ward. He was a man on whom his friends relied when either professional or civic service was to be performed.

He is survived by his widow, Mrs. Nellie Hudgings, and one daughter.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1934

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society, December 18, 1933.

Lewis County Medical Society, January 1, 1934.

Chariton County Medical Society, January 4, 1934.

Mercer County Medical Society, January 10, 1934.

Lincoln County Medical Society, January 18, 1934.

Benton County Medical Society, January 20, 1934.

Camden County Medical Society, February 3, 1934.

Carter-Shannon County Medical Society, February 5, 1934.

Dent County Medical Society, March 17, 1934.

Clinton County Medical Society, March 31, 1934.

Schuyler County Medical Society, April 10, 1934.

Moniteau County Medical Society, April 21, 1934.

Barry County Medical Society, May 15, 1934.

Ray County Medical Society, October 10, 1934.

Knox County Medical Society, November 12, 1934.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order by the vice president, Dr. L. Paul Forgrave, in the Missouri Methodist Hospital at 8 p. m., October 17, with fifty-three members present.

Dr. Ernst E. Wadlow, St. Joseph, presented an illustrated paper on "The Modern Trend in the Treatment of Eclampsia." The paper was discussed by Drs. W. T. Stacy and W. D. Webb. This was a splendid contribution and the discussion was good. Many valuable points were brought out.

Dr. W. T. Elam, St. Joseph, read from the *Bulletin* of the St. Louis County Medical Society "The Doctor and His Politics" urging all members to be represented in public thinking and to see political candidates in the district now, make contact with them and express the Society's opinions on medical problems. Politicians never create; they always crystallize. Their business is to discover dominant currents of public thought and translate them into law and practice.

The chairman of the committee appointed by the president to revise the by-laws read the revision section by section and they were adopted by vote of the members present with the following exceptions:

Chapter 1, Section 1 was changed to read 65 years instead of 75 years. In Chapter 8, section 1, relative to the appointment of standing committees, an addition or change was made which will appear in the new by-laws when they are printed. Section 6 of chapter 8 was also added to. The addition will become a part of the duties of the medical social service committee. The amendment offered by Dr. A. H. Muench to section 3, chapter 10 was defeated. A motion was made by Dr. Floyd Spencer seconded by Dr. L. J. Ferguson that a cancer committee be added to the list of standing committees. After considerable discussion this motion was defeated. Motion was made by Dr. W. T. Stacy and seconded by Dr. L. H. Fuson that all the amendments be adopted as read. This carried by a two thirds vote of all members present.

An amendment to chapter 3 of the new by-laws was offered by Dr. W. T. Elam. It was read before the society and a copy will be placed in the hands of every member. It will be voted on at the next regular meeting, November 7.

Meeting of November 7

The Buchanan County Medical Society was called to order by the president, Dr. W. C. Proud, in the Missouri Methodist Hospital at 8 p. m. with thirty-five present.

The amendment to Chapter 3 of the new by-laws relative to the election of officers, introduced by Dr. W. T. Elam, was defeated.

A letter was read from Mrs. W. G. Pollock, chairman of the health committee, asking the Society to formulate plans to carry on immunization against diphtheria in the public schools of St. Joseph. The matter was discussed by Drs. H. DeLameter, J. F. Owens and W. Roger Moore. A motion was made and seconded that the matter be referred to the medical social service committee.

An amendment to the new by-laws introduced by Dr. J. J. Bansbach which would change Chapter 1, Section 1, relative to honor members, to read 70 years instead of 65 years.

A proposed change in the new by-laws, chapter 8, section 6, was introduced by Dr. W. T. Stacy which would strike out the paragraph which appears in the *Bulletin* leaving Section 6 of Chapter 8 as originally proposed by the by-laws committee.

Dr. W. Roger Moore spoke on "Review of Recent Literature on Fat Soluble Vitamins." This was a scientific and well prepared address. It was discussed by Drs. H. E. Peterson and Jacob Kulowski.

Emmett F. Cook, M.D., Secretary.

COLE COUNTY MEDICAL SOCIETY

The Cole County Medical Society held its regular annual Fall Clinic at St. Mary's Hospital, Jefferson City, October 30. This session supplements the regular weekly meetings. The clinic was an excellent meeting and was well attended by physicians from the counties of Central Missouri.

In the forenoon there was a surgical and medical clinic at the hospital. The afternoon program began at 2 o'clock and at 6:30 an excellent dinner was served at the hospital to all attending physicians as guests of the Cole County Medical Society. After dinner the evening program was presented.

The afternoon program included an address on "Skin Cancer" by Dr. R. L. Sutton, Kansas City, and a symposium on genito-urinary conditions consisting of the following addresses: "Treatment of Urethritis and Cystitis," Dr. H. H. Kramolowsky, St. Louis; "Complications of Urinary Infections," Dr. R. L. Russell, Jefferson City; "The Clinical Interpretation of the Urinalysis Findings," Dr. Thomas Kelly, Jefferson City; "Conditioning the Patient for Elective Surgery of the Prostate," Dr. R. P. Dorris, Jefferson City; "A Description of the Present Day One and Two Stage Prostatectomy," Dr. M. R. Aldridge, Jefferson City;

"The Medical and Semi-Surgical Treatment of the Prostate," Dr. Edward Mansur, Jefferson City, and "The Common Types of Kidney Disease Due to Infection and the Present Day Treatment of Each," Dr. H. H. Kramolowsky, St. Louis.

In the evening Dr. Duff S. Allen, St. Louis, spoke on "The Newer Aspects of Thyroid Surgery," and Dr. R. L. Sutton, Kansas City, gave an illustrated lecture on "Big Game Hunting in Asia and Africa."

The lectures given by the guest speakers were enjoyed by all and every one was enthusiastic in praise of these splendid lessons. The visiting physicians remained to the last of the program at 11 p. m. although many had come over fifty miles to attend.

The Cole County Medical Society expresses its appreciation to the visiting speakers for their excellent lectures and also to the Missouri State Medical Association for their cooperation in providing such excellent speakers.

James A. Hill, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order at 8 p. m. October 22 with nineteen members present.

The president, Dr. Ed. D. James, Joplin, read a communication from the Department of the Interior concerning the fees for Indian patients and announced the schedule of fees would be in the hands of the secretary.

It was moved and seconded that the resignation of Dr. M. C. Shelton, Joplin, be not accepted and that he be made an honor member.

Application for membership into the Jasper County Medical Society was made by Dr. S. A. Grantham, Jr., Joplin. He was unanimously accepted.

Meeting of October 30

The Society was called to order with twenty-four members present.

A communication from the Crawford County (Kansas) Medical Society was read.

Dr. R. M. James, Joplin, reported a case with an allergic reaction from bismuth sodium tartrate with skin rash and suggested that it might be an arsenic reaction.

Dr. D. R. Hill, Joplin, reported a case of lichen planus.

Dr. J. A. Chenoweth, Joplin, reported two deaths from laryngeal diphtheria.

Dr. A. B. Clark, Joplin, discussed the antitoxin of diphtheria used in the public schools.

Dr. S. A. Grantham, Jr., Joplin, read the essay of the evening on "Gas Gangrene" including a report of a case in which infection appeared in a wound of the cubital space of the left arm. Combined surgical and serum treatment was used with success. Dr. Grantham emphasized the necessity of prophylactic serum, early diagnosis and combined surgical and serum treatment if infection appears. The paper was discussed by Dr. J. W. Barson, Dr. L. W. Baxter, Dr. B. E. DeTar and Dr. S. A. Grantham, Sr., Joplin.

Paul W. Walker, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the Arcade Hotel, West Plains, for dinner at 1 p. m. October 25 with the following present: Drs. A. H. Thornburgh, P. D. Gum, L. E. Toney and J. W. Bingham, West Plains; H. G. Frame, R. A. Ryan and A. C. Ames, Mountain Grove; J. F. Gullic, Koshkonong, and R. M. Norman, Ava.

Following the dinner the meeting was called to order by Dr. A. H. Thornburgh, West Plains, vice president.

The secretary read a letter from the Mid-South Postgraduate Assembly inviting the members to join that society and attend its meeting at Memphis, Tennessee, February 12 to 15, 1935.

The secretary also read a communication from the United States Public Health Service calling attention to the publication, *Venereal Disease Information,* and a communication from the Missouri Academy of Science inviting the Society members to join that organization.

Dr. H. G. Frame, Mountain Grove, read a paper on "Puerperal Eclampsia" in which he stressed the use of magnesium sulphate intravenously.

Dr. A. H. Thornburgh, West Plains, read a paper on "Undulant Fever" pointing out that it is more prevalent than is generally realized and that it often escapes diagnosis; that it is prevalent among cattle and that the danger to humans from milk is great; that there should be as much effort to eradicate undulant fever from dairy herds as tuberculosis. Both papers were discussed.

A. C. Ames, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, May, 1935

President, Mrs. William H. Goodson, Liberty.
President-Elect, Mrs. M. Pinson Neal, Columbia.
Adviser, Dr. J. F. Harrison, Mexico.

The Mid-Year Board Meeting

Thirty-three members of the executive board of the Woman's Auxiliary assembled for luncheon October 17, at the Pennant Hotel, Columbia. The address of welcome was given by the president, Mrs. W. H. Goodson, Liberty, and the invocation by Mrs. Frank L. Davis, St. Louis.

A business meeting followed the luncheon at which cheering reports from officers, chairmen of standing committees and county presidents were given. Matters pertaining to the organization of new auxiliaries, the essay contest, public relations, *Hygeia,* archives and revision of the constitution were given special attention.

Just following the board meeting came the welcome news of the organization of the Callaway County Auxiliary at Fulton with Mrs. R. C. Fagley, Fulton, president.

The Lafayette County Auxiliary entertained forty members and guests in honor of the officers of the State

Auxiliary at a tea at the home of Mrs. T. R. Butler, Lexington, the afternoon of November 7.

The musical program was given by Mrs. Guy Bates and Mrs. Guy Morrison. At the request of Mrs. J. W. Horner, president of the hostess Auxiliary, the state president, Mrs. Wm. H. Goodson, Liberty, talked informally, bringing information and inspiration concerning common auxiliary interests. Mrs. Goodson, whose outstanding literary tastes and abilities fill us with pride, reviewed briefly certain fine books of fiction which use doctors' lives as the foundation and body of the stories. Following brief remarks from other members of the state board, Mrs. J. W. Lightner closed the informal program with a charming tribute in verse to the doctors' wives.

The Jasper County Auxiliary entertained the Missouri Nurses Association in Joplin October 25 with a delightful program of dances, readings and songs, featuring talent in the families of the members of the auxiliaries. The daughters, granddaughters and a grandniece provided the entertainment for 150 guests.

The first report this year of a Public Relations Day meeting came from St. Louis. The meeting was held in the dining room of the St. Louis Medical Society Building October 23 with the presiding officers of nearly one hundred federated and other health interested clubs as guests. One hundred sixty members and guests were welcomed by the president, Mrs. F. S. Haeberle, St. Louis, and assistant chairmen. After lunch the Public Relations Day chairman, Mrs. H. M. Whelpley, St. Louis, introduced the speaker of the day, Dr. Joseph F. Bredeck, St. Louis. Dr. Bredeck gave an exceedingly interesting and instructive talk on "Public Health Nursing Needs." He stressed the importance of preventive measures and the need of nurse's care in following up immunization in children's diseases.

The Jackson County and the Greene County auxiliaries have each recently entertained in honor of the state president, Mrs. W. H. Goodson, Liberty.

The Buchanan County Auxiliary augmented handsomely the *Hygeia* fund with a book review program to which admission was charged.

Mrs. A. B. McGlothlan, St. Joseph, is heading the St. Joseph Community Chest.

Of special interest at the meeting of the Boone County Auxiliary November 1 was the distribution of the program year books and the review by Mrs. S. D. Smith, Columbia, of Mrs. Willard Bartlett's "The First Twelve Years."

For the Essay Contest the Clay County Auxiliary will give $3.00 as a first prize and a year's subscription to *Hygeia* as a second prize in both the senior and junior groups of contestants.

The Johnson County Auxiliary has a new member, Mrs. E. R. Cooper, Warrensburg. She will act as secretary-treasurer in the place of the former secretary, Mrs. J. W. Bolton, who recently married the Rev. J. W. Borah, Bland.

The 26th District Auxiliary is making a fine record in some of its counties in placing *Hygeia* in the public schools.

MISCELLANY

FIFTIETH ANNIVERSARY OF DR. M. P. OVERHOLSER IN THE PRACTICE OF MEDICINE

Remarks by Dr. J. S. Triplett,
Harrisonville, Missouri

To have been actively, continuously and successfully engaged in the practice of medicine for fifty years is evidence that one thus engaged must have loved his work and possessed the ability to carry on. To have held the respect and confidence of the profession and of the public for fifty years should beget a feeling of appreciation of service. One of our members, Dr. M. P. Overholser, Harrisonville, has reached his fiftieth anniversary in the practice of medicine so it is fitting that this Society honor the doctor by devoting a part of this program to recounting some of his outstanding achievements.

It has been my good fortune to have known the doctor quite intimately for the last 42 years. By reason of this extended acquaintanceship and through professional association I have had ample opportunity to know what manner of physician he is.

Milton Pleam Overholser, son of Levi and Maria (Pleam) Overholser, was born June 19, 1859, on a farm in Will County, Illinois, near what is now known as Downer's Grove, a suburb of Chicago. At the age of 6 years he moved with his parents to Lancaster County, Pennsylvania, where he received his common school and high school education.

His father owned and operated a woolen mill at Safe Harbor, Pennsylvania, in which Milton worked between school terms. Later, while living at Lincoln, Lancaster County, Pennsylvania, the Overholser family lived in a duplex the other part of which was occupied by a physician named Jacob Charles. Here Milton and Dr. Charles were in each other's company so much that a close friendship was formed. It was his admiration for Dr. Charles that influenced him, partly at least, to make the practice of medicine his life career. This was when he was 18 years of age. At the age of 19 he removed with his parents to a farm in Russell County, Kansas.

Like many other ambitious young men depending upon their own resources in gaining their coveted goal he taught school as a stepping-stone to the practice of medicine. In all he taught eight terms of school, his first before reaching the age of eighteen, in the following places, viz.: Lancaster County, Pennsylvania; Russell County, Kansas; Johnson County, Kansas, and Jackson County, Missouri. In Kansas, during vacations from teaching, he assisted in general farm work on his father's farm in Russell County.

He received the degree of M.D. from the Kansas City Medical College, Kansas City, Missouri, in 1884. He practiced in Kansas until the spring of 1889 and then located at Harrisonville, Missouri, to make his permanent home. Except for the time spent as superintendent of State Hospital No. 3, Nevada, and State Hospital No 2, St. Joseph, he has been actively and continuously engaged in the practice of medicine at Harrisonville.

Among important elective and appointive positions held by the doctor are the following: Member of the Missouri State Board of Health, 1909-11; member pension board of examiners during the administrations of McKinley, Cleveland and Harrison; local surgeon,

Read before the Cass County Medical Society at Harrisonville, September 13, 1934.

Missouri Pacific Railway Company for 35 years; formerly lecturer on hematology in the University Medical College, Kansas City; member of the county, state and national medical bodies; president of the Missouri State Medical Association, 1918-19, and chairman of the Committee on Revision of Constitution and By-Laws of the Missouri State Medical Association.

He was a charter member of the Cass County Medical Society and took an active part in its organization. In fact, it was Dr. Overholser who took the initiatory step to organization when he addressed letters to the physicians of Cass County requesting their opinion as to the advisability of organizing a county medical society. He has been a faithful and honored member ever since its organization and has been influential in shaping its policies. In appreciation of his efforts the Society has accorded him all the honors it could bestow.

He has also taken an active and important part in the affairs of the Missouri State Medical Association in which his ability is adequately recognized.

When the State Medical Association first divided the counties into councilor districts Dr. Overholser was made Councilor of the district composed of the counties of Jackson, Johnson, Cass, Bates, Henry, St. Clair, Cedar and Dade. He assisted in organizing county societies in all of these with the exception of Dade, Cedar and Jackson counties. He later recommended that Jackson County be made a separate councilor district which was done. He served as Councilor until he resigned in order to devote more of his time to duties as a member of the State Board of Health and as superintendent of State Hospital No. 3, Nevada.

Dr. Overholser has ever been a supporter and defender of organized scientific medicine. By determination, perseverance, hard work and close application he has acquired the knowledge, skill and experience necessary for the making of a physician of exceptional ability. And he is so recognized by the medical profession and by the public.

He has never ceased to be a student. By reading and studying current medical literature and by postgraduate work he has kept himself abreast of medical progress.

His ability was so highly regarded by the physicians of the county that prior to his entering state hospital work he enjoyed a larger consultation practice than any other Cass County physician.

Remarks by Dr. W. F. Chaffin, Raymore, Missouri

It seems perhaps it would be more fitting for some Harrisonville member of this organization to give a summary befitting the fiftieth anniversary of this active, consistent, devoted knight of the healing art. He is here before us tonight with a youthful, radiant countenance bespeaking a life far from finished.

Should one know more of his family history, his struggles of early manhood, his successes and disappointments, before attempting this history or eulogy? Hardly! It is quite enough that we know him in the clear light of half a century in the honorable persistent delivery of a real medical service to his fellow men.

Methinks he may have come of a long line of ministers because of the halo of bouyant, sustaining hope born of the early hereditary training and culture in his personality. Be that as it may. Or was he born near the Mason and Dixon line at a time when infants at their mothers' breasts suckled the bitter, murderous hatreds in the hearts of brothers at war in a nation torn and ragged with internecine strife? If the latter be the truth, then all the more honor to our brother practitioner who is what he is because of what he overcame.

He was the pioneer organizer of the Cass County Medical Society which on many occasions has received recognition reflecting creditably on the profession in this county. He has seen the unforseen; namely, the decrease from fifty physicians in Cass County to about half that number. This alone is not the discouraging condition it may appear to the laity.

Let us think of the mighty changes he has seen transform the old theories of medicine into almost an exact science. In his day the germ theory of most diseases was established. The cause of most cases of inflammation of the bowels was discovered. He has experienced during an epidemic of diphtheria bereavement from the grim destroyer in his family at a time when childhood and parenthood were sweetest and antitoxin was experimental and not easy to secure. He has seen epidemics of typhoid fever so distressing as to make the day's work tiresome and the nights full of sleepless hours. Malaria in the form of ague and intermittent fever with many other more or less vague symptoms was rampant throughout this territory for many years.

Behold, now what a change, what a transformation, brought about by the tireless scientific devotees of the microscope and allied instruments in the hands of just such men as the distinguished subject of my remarks.

He is to my knowledge the first general practitioner in Missouri to delve deeply into early experiments to discover the functions of the ductless glands and their interrelationship.

He has always been more than an ordinary worker to do anything that would further the interests of medical organization and its efficiency. His compilation of "Symptoms Caused by Overproduction of Insulin by the Islands of Langerhans of the Pancreas and Treatment," as reported by research workers, is a masterpiece of painstaking studied detail. I must confess my inability to grasp many of the high points in his pathologic summary and the importance of recognizing symptoms. The free discussion was proof that this paper went over the heads of some of us thus proving his leadership.

Early in adult life he must have aimed his destiny at a star high in the medical firmament and in education as in religion realized there are certain intangible qualities, indispensable and potent, which no amount of observance of formalities can supply.

"Being" educated is too often confused with "getting" education. Acquiring credits is confused with acquiring culture. Good teacher, what may I do to be educated? Think not on credits and degrees. "Seek culture and understanding and strive earnestly for wisdom," surely was his early motto.

Bernard Fantus presents the outline of Sanford R. Gifford, Chicago (Journal A. M. A., Nov. 17, 1934), on the therapy of glaucoma as it is employed by the attending staff of the Cook County Hospital. The definition of glaucoma given is the following: a sufficient increase in intraocular tension to damage the contents of the eyeball. Differentiation must be made between acute primary glaucoma, chronic primary glaucoma, secondary glaucoma and absolute glaucoma. The tonometer and the perimeter must be used as a routine whenever there is even a suspicion of glaucoma. In the normal eye the tension is between 15 and 25 mm. of mercury as measured by the tonometer (Schiötz). A number of prescriptions are given.

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NUTRITIONAL XEROPHTHALMIA

Although hemeralopia is a frequent symptom in the ordinary, mild, chronic, adult type of xerophthalmia, it was not present at any time in the case that J. A. Thorson, Dubuque, Iowa (Journal A. M. A., Nov. 10, 1934), reports. The disease ran a protracted course for six years, with a seasonal variation in severity. During the fall and winter months the patient consumed no vitamin A, while in the spring a few green vegetables and eggs became sightsavers. The effect of abundant sunlight, as proved by the ingenious experiments of Powers, Park and Simmonds, must also have been an important seasonal therapeutic factor.

BOOK REVIEWS

Diseases of the Heart. Described for Practitioners and Students. By Sir Thomas Lewis, C.B.E., F.R.S., M.D., D.Sc., LL.D., F.R.C.P., Hon. D.Sc. (Michigan), Physician in Charge of Clinical Research University College Hospital, London; Physician of the Staff of the Medical Research Council; Physician in Chief (pro tem) Peter Bent Brigham Hospital, Boston; Honorary Fellow New York Academy of Medicine; Corresponding member Association of American Physicians and Interstate Postgraduate Medical Association. New York, The Macmillan Company. London: Macmillan & Co., Ltd. 1933. Price $3.50.

The author quickly comes to grips with the main concern of all who would satisfactorily treat heart disease when he says that in detecting heart failure the physician is exemplifying the best traditions of the practice of medicine. He considers subjective and objective dyspnea, abnormal distension and pulsation in the neck veins, an enlarged liver detected preferably by percussion and edema of the lower extremities when other causes frequently present are excluded, and most important signs of congestive failure. Pallor and cyanosis are uncertain signs for the latter is so bound up with skin temperature and other influences that it is hazardous to make a diagnosis of heart disease on this sign alone. Capillary pulsations usually thought of as caused by aortic insufficiency are dependent in part on the accompanying vasodilation and occur in many conditions other than heart disease, usually in a warm skin. Under treatment he says digitalis is still given empirically, and adheres to the tenets of the English school, i. e. that the drug is of little value except in auricular fibrillation, but concedes benefit in some cases with regular rhythm. The statement that 20 minims of the tincture daily does not affect congestive failure will be admitted by most. However in this country some clinicians in what may be very early failure get improvement in 30 minim doses and Gold and DeGraff have with the same dosage in ambulatory patients with actual though mild failure secured results ordinarily obtained after larger doses.

The author does not think that with normal rhythm the murmur of mitral stenosis is really crescendo or that it can be accurately timed clinically; insists the commonest apical murmur is cardiorespiratory; the diagnosis of mitral valve disease depends more on recognition of stenosis than regurgitation and discards the idea that valve defects cause most of the trouble in failure. All through the book he champions the infectious theory as opposed to that of strain. One frequently hears of an acute dilation of the heart as causing a "heart attack" accompanied by a rapid pulse. The author believes it is the other way around and that infections, asphyxia and prolonged tachycardias, etc., cause the dilation and that treatment should be directed against these conditions. He favors the orthodiagraph for measuring the heart's size; believes the palpated outer border of the maximum apical thrust a reliable clinical index of heart border; inveighs against the idea that percussion gives an exact outline, although he suggests its use to confirm the questionable position of the "apex" and to take its place when the impulse is not present. The statement here made, and it is frequently done, that a blindfolded person will not always percuss the same is used to discredit percussion. It is questionable whether the highly developed sensory coordination necessary for satisfactory percussion can have one of its components abruptly withdrawn without producing a sensory awkwardness fatal to satisfactory sensory perceptions. He might have added that orthodiascopy is a highly subjective method and teleroentgenography unless done with the strictest attention to many details is as subject to error as are the ordinary physical methods.

In the last chapter care in the use of diagnostic terms when talking with patients is suggested lest they carry to the lay mind implications which fail to bring about whole hearted and optimistic cooperation. On page 155, the author illustrates the menace of *post hoc propter hoc* reasoning and the frequent failure to compare only comparable groups in reaching conclusions. He escapes self-entrapment in diagnosis and therapy by admitting that much is still unknown, such as the actual precipitating cause of attacks of cardiac asthma. Special signs with and without proper names are discussed briefly for they are seldom diagnostic. Beginners in physical diagnosis who usually highly prize these signs should realize this and not make them the chief criteria.

The book makes it seem easy to successfully apply ordinary physical methods in diagnosis and it probably is to the author who has not come to his present facility without having had a long period of patient self-training in which he has raised the art especially of inspection to a higher level. L. S. L.

Diseases of the Skin. By Oliver S. Ormsby, M.D., Clinical Professor of the Department of Dermatology, Rush Medical College of the University of Chicago. With revision of the histopathology in this edition. By Clark Wylie Finnerud, B.S., M.D. Fourth edition, thoroughly revised. Illustrated with 619 engravings and three colored plates. Philadelphia: Lea & Febiger. 1934. Price $11.50.

The revised fourth edition by this competent author far surpasses his previous editions. Many new diseases are described, old ones rewritten and excellent photographs of the varied dermatological conditions are added. Eighty-eight pages are devoted to the different diseases due to vegetable parasites. The description of the different tids is a classic and opens a new field in dermatology.

One of the outstanding features is the admirable work done by Clark W. Finnerud in revising the histopathology.

New technic and suggestions have been made in the different forms of therapy.

With all this work and the compiling of extensive references to date makes this book one which students, practitioners or specialists will be proud to possess.

W. L. McB.

A Primer for Diabetic Patients. By Russell M. Wilder, M.D., Professor and Chief of the Department of Medicine of The Mayo Foundation, University of Minnesota. Fifth edition, reset. 172 pages. Philadelphia and London: W. B. Saunders Company. 1934. Price $1.75.

In this as in the usual diabetic primer too much emphasis is placed on the patient's ability to control his diabetes, too little on the importance of regular observation by the physician; the preface, however, suggests the importance of the latter relationship. For example, the coma patient is advised to take insulin every hour until the urine is sugar free; to this reviewer it would seem wiser to put the emphasis on immediately placing himself under the care of the physician. The recipes appear excellent and substitutions to insure variability and palatibility in the diet are carefully explained. B. Y. G.

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J. HOLZER